

# AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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D. K. MINOR, EDITOR.]

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## AMERICAN RAILROAD JOURNAL.

NEW-YORK, JANUARY 16, 1836.

### INTERNAL IMPROVEMENT CONVENTION.

We publish in this number, notwithstanding a part has before been given, the entire proceedings of the late Internal Improvement Convention, held at Albany. The object of the Convention is to promote and extend the work of Internal Improvement in the State, and beneficial results must necessarily flow from the intercourse of intelligent gentlemen, from all parts of the State, who are interested in the extension of such works. The association of such gentlemen with such views, will necessarily be the means of diffusing useful information, and in that alone which is necessary to insure the progress of a general system of useful improvement.

As an evidence of the good which will result from the Convention, we refer with great pleasure to the Report herewith given, made by the Committee, of which Mr. Joseph Blunt was Chairman, in relation to the Common Roads and Bridges of this State. It shows a state of things, an expenditure to little purpose, of which few, very few, persons are aware. It should be widely circulated, and generally read.

At the Convention, it will be perceived that a State Society was formed, to promote the object, for which the Convention assembled, and a meeting of that Society has, we understand, been called for the 11th inst. at Albany. A circumstance, we apprehend, to be regretted, in consequence of the short

notice which the members will have, and the difficulty of attendance to others, and especially of this city. It seems to us, that the 1st of May would have been a better time, as then travelling would have been good, and business will call many of those interested to Albany and this city. A meeting however is called, and will, we hope, be well attended—and at that meeting measures should be taken to expedite the construction of a better means of travelling between this city and Albany, as well as in many other parts of the State.

ICE BOAT.—It appears by letters from Philadelphia, that on Thursday 18th, the Ice Boat of the Camden and Amboy Railroad was still crossing, though the ice was so strong as to interrupt every other sort of navigation.

In reply to several inquiries from subscribers, whether we shall be able to supply missing numbers of the last year, we will say to all, that we hope to be able to supply most of them; at present, however, we are unable to say how many, as the numbers which were saved have not yet been assorted and arranged, for want of room to do so.—A few days, however, or as soon as we can get a suitable place, will enable us to forward such numbers as we have on hand.

"First come first served," is an old rule, and every request for numbers is registered, and will be answered at the earliest possible period—especially those accompanied by a remittance for the Journal.

TO SUBSCRIBERS AND POST MASTERS.—It sometimes occurs that numbers of this periodical are returned by a subscriber, or Post Master—without writing upon it the Post Office, or name of subscriber, and therefore we cannot tell whose to stop.—In all cases of returning a number, we should be much obliged by having the name

of the subscriber and Post Office written upon the margin or cover—but much better pleased at receiving the money for a year in advance.

PUBLIC DOCUMENTS.—We are indebted to C. W. Wever, Esq., of the Baltimore and Ohio Railroad, for a copy of the 9th Annual Report of the Baltimore and Ohio Railroad Company.

Also to J. E. Bloomfield, F. B. Cutting, and Holmes Hutchinson, Esqrs., for the Annual Report of the Canal Commissioners, for the past year, and their Report of 26th January, under the act of 11th May last, in relation to the Enlargement of the Erie Canal.

We have also a copy of the Report of the Canal Commissioners of Pennsylvania, in relation to the Canals and Railroads of that State, from all which we shall make such extracts as we may deem of interest to the readers of the Journal. The communication of CLINTON, and of SKEATON, are at hand, and will appear in our next.

EVERY'S ROTARY ENGINE.—We gave in No. — vol. 4, of the Journal, a description of this engine, accompanied by a drawing of one we then had in use.

The account we then gave was founded upon the performance of other engines of the same description, one of which we had several times seen in operation, and not upon the performance of our own, which was in several respects different from any other which had been in use, and which we were then putting in operation, with a boiler upon a new plan, constructed for anthracite coal, and the first of the kind which had been made.

In the construction of this boiler it was designed to try an experiment, and to ascertain if a certain amount of labor, the driving of a double cylinder registering printing machine, (which required three men to turn it

about seven hours a day,) could be performed with a given quantity of fuel. The boiler, however, on trial, was found insufficient, and another one, one of Dr. Nott's tubular boilers, was obtained from the Novelty Works of this city, which was put into successful use a few days previous to the destruction of our office, press, and engine, by the great conflagration.

With this boiler, and a furnace of 16 inches long, by 9 broad, and 18 high, the coal resting upon one of Dr. Nott's revolving grates, we were able to drive our machine eight hours, constantly, and steam blowing off much of the time, with one hundred and fifty lbs. of Schuylkill coal, and we doubt not, but that, with some trifling improvements which were in course of preparation, and would have been completed within one week, we should have been able to drive two such machines with 200 lbs. of the same kind of fuel.

We regret exceedingly the want of an opportunity to try the power of the engine fully, with a given quantity of fuel and water, as we are confident that the results would have been so highly satisfactory to all parties interested, and a statement of them an answer so satisfactory to the numerous inquiries by letter, and verbally, which we had omitted to answer, until we could give positive statements of actual performances, which we intended to do, as soon as we could speak positively.

The loss, however, of the engine and machine, and every thing connected with them, has put it out of our power, for the present, to give such a statement as our entire confidence in the value of the engine prompts us to. This much we can say, and feel confident that future results will bear us out in the assertion, that a Rotary Engine of this description, with a boiler of five to fifteen horse power, will cost less, require less fuel, less expense of repairs, and of attendance, and perform as much labor, as any other engine with which we are acquainted, with the same boiler.

Other engines of the kind are in use in different parts of the country as well as in this city, of which we shall have more to say anon.

For the Railroad Journal.

New-York, Jan. 23, 1836.

Sir,—Having several times been storm-stayed upon Railroads, and obliged, at two different times, to remain out all night, in consequence of snow being on the track, I take peculiar pleasure in witnessing the operation of any apparatus or contrivance for clearing snow or ice from the rails. Being at Newark on Monday last, I had the pleasure of witnessing the performance of a very simple contrivance of L. A. Sykes, the Engineer of the New-Jersey Railroad, which far surpassed any thing of the kind I ever before saw, both in regard to its simplicity and its effective operation. I saw it clear the rails perfectly of a very tenacious sleet and ice four or five inches deep, without causing any apparent diminution in the speed of the engine, and was told that in some

places it passed through a snow and ice of ten inches in depth. I understand that it was designed principally to clear the rails of ice and sleet, but is equally beneficial in clearing off a light snow. The apparatus consists simply of a pair of bars or levers attached to the front end of the engine, and standing nearly in an upright position, and operated upon by a rope or chord. It is used without the least possible danger, even at the greatest speed, and is so small that it can be conveniently carried at all times upon the engine or tender car, and can be easily attached or detached, at any time, in one or two minutes. Railroad managers or superintendents will do well to call and see the contrivance, as it is certainly a very valuable improvement. Yours, &c.,  
A TRAVELLER.

#### INTERNAL IMPROVEMENT STATE CONVENTION.

At an adjourned meeting of the Internal Improvement Convention of the State of New-York, at the Capitol in the City of Albany, on Monday the eleventh of January, 1836, the Hon. SAMUEL CHEEVER was appointed President, and A. J. PARKER, Esq., Secretary.

The following were delivered to the Secretary as the names of gentlemen selected by the different counties, and of those who appeared as delegates to the Convention.

**Albany.**—Samuel Cheever, Thomas W. Olcott, Jesse Buel, John V. L. Pruyn, John C. Schuyler, Daniel Dorman, Augustus James, Jared L. Rathbone, James Savage, Ezra P. Prentice, Henry L. Webb, Joel B. Nott.

**Allegany.**—John Griffin, Calvin T. Chamberlin, Luther C. Peck, Walter S. Church.

**Broome.**—George Park, Judson Allen, Daniel S. Dickinson and Ashburn Birdsall.

**Cataugus.**—Andrew Mead, D. M. Day, C. J. Fox.

**Chautauque.**—Walter Smith, Richard P. Marvin, ——— Campbell, Benjamin Walworth.

**Chenango.**——— Mead, ——— Knowlton, Augustus C. Welch.

**Clinton.**—James B. Bradshaw, Lemuel Steltson.

**Columbia.**—Ambrose L. Jordan, Shearon Miller, Ayres M. Stebbins.

**Cortlandt.**—Cephas Comstock, Chauncey Reed.

**Delaware.**—John Griffin, Jas. W. Knapp, Amasa J. Parker, Noadiah Johnson, Samuel Gordon, Stephen C. Johnson.

**Dutchess.**—Thomas Taber, Obadiah Titus, Joel Benton, George W. Slocum, Daniel D. Aikin, Taber Belden, Alexander H. Grant, James M. Abbott, Samuel Pughtley, Columbus Reed, Walter Sherman, William Hunt, Allen Thompson, Silas Harniss, Jacob Sisson, James Hooker.

**Franklin.**—Luther Bradish, Asa Hascall, James Duane.

**Greene.**—Jacob Haight, Isaac Van Loon, Abraham Van Vechten, James Powers, John Kuisted, Abraham Baker.

**Herkimer.**——— Beckwith.

**Lewis.**—Thomas Baker.

**Livingston.**—Charles H. Carroll, William T. Cuyler, George W. Patterson, William H. C. Hosmer.

**Monroe.**—Fletcher M. Haight, James Smith.

**Montgomery.**—David Spraker, Henry V. Berry, Joseph Blair, Jacob Johnson, John Hoogkisk.

**New-York.**—Joseph E. Bloomfield, David C. Colden, Philip Kearney, Morgan L. Smith, Samuel Sherwood, Dudley Selden, Philip Hart, ——— Redfield, Wm. Howard

**Niagara.**—Hiram Gardner, A. H. Porter, John Beach, Bates Cooke, Seymour Scoville, Amos S. Tryon.

**Oneida.**—Samuel Farwell, David Wager, Charles P. Kirkland, J. A. Spencer, Horatio Seymour, W. Crafts, S. P. Lyman, A. Hutchinson, N. Deveraux, T. F. Faxton, Alvaa Stewart, P. S. Root, John Dean, Ebenezer Robbins.

**Orange.**—Robert Sly, Thomas Van Etten, Charles Borland, jr.

**Otsego.**—Levi Beardsley, Albert Benton, Sumner Ely, L. J. Walworth, Ivory Holland, J. O. Morse, I. E. Cray, F. A. Lee, H. Phinney, Wm. Baker, E. Crafts, Hiram Bostwick, Luther C. Saxton, Seth Chase.

**Rensselaer.**—R. P. Hart, G. R. Davis, J. P. Cushman, Stephen Ross, Daniel Gardner, Isaac McCorniche, R. D. Tillman, L. G. Carman, Amos Briggs, R. J. Knowlton, A. Walsh, Elias Parmelee.

**Saratoga.**—Henry Granger, Earl Stimson, Lee Benedict.

**St. Lawrence.**—Jabez Mills, Preston Ring, William S. Paddock.

**Steuben.**—George Huntington, Hervey Switzer, L. B. Searl, Ziba A. Leland.

**Sullivan.**—John P. Jones, S. G. Demmick, P. Pelter, Friend Wheelock.

**Tioga.**—— Sutton, ——— Goodwin.

**Tompkins.**—Charles Humphrey, William R. Fitch, George B. Guinnip.

**Ulster.**—Jacob Trumphour, H. W. Romayne, Dr. Brevier.

**Warren.**—William Griffing, William McDonald.

On motion of Mr. Spencer, it was Resolved, That a Committee of seven be appointed to nominate suitable officers for this Convention: whereupon the following gentlemen were appointed members for the Committee.

Joshua A. Spencer, Richard P. Hart, A. J. Parker, J. E. Bloomfield, Luther Bradish, Thomas W. Olcott and Ambrose L. Jordan.

Convention adjourned to meet to-morrow afternoon at 3 o'clock.

Assembly Chamber, Tuesday, Jan. 12, 1836.

Convention met pursuant to adjournment. Mr. Spencer, from the Committee appointed to nominate officers for the Convention, made the following report:

For President, Hon. SAMUEL CHEEVER.

Vice Presidents, SUMNER ELY, CHARLES BORLAND, jr.

Secretaries, DAVID C. COLDEN, FLETCHER M. HAIGHT.

The report of the Committee was adopted, and the officers named took their seats.

On motion, it was Resolved, That the following gentlemen, delegates from the State of Connecticut, be invited to take seats in this Convention:

Aaron Seely, E. T. Hoyt, Alex. H. Holley and Samuel I. Robbins.

On motion of Mr. Jordan, the proceedings of the Convention at Utica were read by the Secretary.

The report of the Committee appointed at the Convention held at Utica, to collect information as to the cost of the county and post roads, was presented and read, and on motion of Mr. Jordan, laid on the table.

#### ROADS AND BRIDGE REPORT.

The Committee appointed at the Convention lately held at Utica, on the subject of Common Roads, beg leave to report, that, pursuant to the resolution of the Convention, a circular was addressed to the clerks



Of the several towns in the State, requesting information as to the length of the public and turnpike roads, and the number of bridges in their respective towns, together with the annual cost of keeping them in repair. Answers have been received from 266 towns, and at the time of making the report answers are daily coming in, so that hopes are entertained of making a complete statement of the annual cost of the roads of the State from actual returns. The results of the answers already received show that in 266 towns, having 523,488 inhabitants, the length of public roads is 19,924 miles.

The number of days' work annually assessed for their repair is 416,271

The amount of money annually expended in addition for the same purpose, \$23,931

The length of turnpike roads is 579 miles.

The annual expense of repairing the same \$9,816

The number of bridges 1221

The annual expense of repairing the same \$32,962

The whole number of towns in the State is 791, and the towns making returns are about one-third of the whole, but the population returning is scarcely two-sevenths of the whole population, and the returns therefore may be fairly estimated at that ratio. According to that rule we have the following results:

Length of all the public roads in the State 69,734 miles

The number of days' work assessed for their repair 1,456,948

The additional money expended for the same purpose \$34,258

The number of public bridges 4,274

The annual cost of keeping them in repair \$115,363

Estimating the value of each day's work at 75 cents, and the assessed labor will amount to the sum of \$1,092,711, to which the sum of \$34,258 must be added, and we have the enormous sum of \$1,176,969 annually expended in the State of New-York for repairing common roads, besides \$115,363 annually expended for the repair of public bridges, besides double that sum in constructing new ones. This, too, it must be recollected, is independent of the sums expended for turnpikes and toll bridges.

If this vast sum expended in each year had produced results proportionate to its amount; if it had effected any visible or permanent improvement in the condition of the common roads, the public might be reconciled to the burden thus annually imposed.

It is manifest, however, that no such improvement is to be found. On the contrary, the public roads in this State have not visibly improved for years. Their condition in those seasons of the year when good roads are required is intolerably bad. No epithet, however strong, can properly characterise their wretched state. When the snow has covered them in the winter, and when the summer's sun has dried and improved them, they are passable; but when these natural agents cease to exert their beneficial influence, and their improvement is left to man, judging only from the results, we should conclude that his sole object was to confine

the traveller by walls and fences to an artificial ditch, and so prevent him from availing himself of the natural surface of the fields on either side of the road to accelerate his journey.

Such are the results of the present system, expensive and burdensome as it is to the people of the State. Your Committee are naturally led to inquire into the causes of its total failure.

Among these we are induced to assign the foremost place to the incapacity and inefficiency of the agents appointed to carry the road laws into effect.

The path-masters do not seem to have the least knowledge as to the true principles upon which roads should be constructed. Instead of properly locating, grading, ditching, and constructing a road of hard materials, they content themselves with laying out a road, not according to the face of the country, but so as to suit the views of the owners of land upon the route; and the grading, ditching, and providing the materials is one operation—consisting of dragging earth and generally vegetable mould from the sides to the centre of the space appropriated for the road, to be levelled, graded, and packed by the wheels of the wagons passing that way.

Roads of this description, made by heaping up mud from the sides, must necessarily be muddy in rainy weather. There is no charm in the action of the carriage wheels to prevent the earth taken from the ditches from becoming mud on the road as well as on its sides. It consequently is soon carried from the road to fill up the side ditches, and the whole becomes in the fall of the year a quagmire, where there is no choice between the road and the ditches. The least reflection as to the nature of roads will show, that no other result could be expected.

A road is an artificial contrivance or machine for facilitating the transportation of heavy loads, and its efficiency depends upon the perfection of its construction. For instance, upon the common roads in their present condition 30 bushels of grain are considered a load for a pair of horses, while upon a Macadamised road the same team can transport with the same exertion 75 bushels.

The obstacles to be overcome are friction and gravitation, which are increased, the first by the softness of the road, and the second by its deviation from a level line.

The proper remedies for these difficulties are to lay out the road as far as practicable through a level country; and to construct it of hard materials, so cemented together that they present a smooth and level surface for the wheels to move upon. The former remedy can be applied by any surveyor who will take the pains to examine the face of the country through which the road is to pass, with the view of selecting a practicable route. The other remedy is more difficult of attainment. Where stones can be procured, it is necessary that they should be broken to a size that they can unite with the body of the road, and thus form one mass. Large stones only serve to break up the road, and to render it rough and impassable.

After a full trial upon the roads of England, MacAdam came to the conclusion that no stone should be used in covering a road that could not be passed through a ring 2 1-2 inches in diameter. Stones of greater size do not cement with the others, and remain to break up the surface of the road.

Another difficulty to be overcome grows out of the action of the elements upon the road. Moisture and frost are the great destroyers of roads, by alternately softening and breaking the surface. To prevent this the road, while its surface should be hardened so as to prevent the moisture from penetrating, it should be so formed that the water will readily run off to the sides, where there should be ditches connected with the natural water courses of the country. The road will thus be kept dry, and the frost will have comparatively little effect upon its surface. The best shape of a road of 30 feet breadth is a segment of a flat ellipsis, with the side channels about nine inches below the surface in the middle. This shape facilitates the passage of the water to the sides, and when the surface is properly constructed will keep it dry and hard.—The ditches should be sufficiently deep to be below the bottom of the metal or materials used in making the road to serve the purpose of draining, and in April and October they should be cleared out so as to afford an easy passage for the water from the road.

The draining under the present system requires a complete reform, as it is of the greatest importance, and requires no great expenditure. With a surface constructed of broken stones cemented into one mass, and with good drains, roads are enabled to resist the action of the elements, and the large expenditure made in their construction is amply repaid by their greater efficiency and durability.

In some parts of the State, however, as, where clay predominates, there is a difficulty in procuring stones of the kind used in constructing roads. This does not often happen, and when it does there is an abundance of material to supply the deficiency. Bricks may be used, as in Holland, to form good roads, and when of suitable form and united with mortar, they will make a covering for a road equally capable with broken stones of resisting the action of the elements. These bricks should be much larger than the ordinary building bricks, burnt hard and placed in mortar upon a surface properly shaped and graded, so as to form a covering for the ground impervious to water.

It has also been suggested that in those parts of the State where lumber is cheap, that good roads might be economically made by using wood to cover their surface.—This may be done either in the mode adopted in Russia, by placing square blocks upright upon the ground, and so closely packed together as to present a smooth and compact surface; or the track may be covered with planks raised a few inches from the ground, united together like a continuous bridge—the planks being placed across the road where undulating, and lengthwise where level.



Either of these modes would form hard and level roads, and although the committee are not prepared to express an opinion as to their relative cost and duration, they are fully satisfied that either mode would be economical compared with the wasteful and useless expenditure of money and labor made under the existing system. From the best information to which the committee has had access, they estimate the cost of a road thirty feet track properly Macadamised to be \$5000 per mile; one of burnt clay \$4000; one of wooden blocks \$4000; one of planks \$3500. These, however, are mere estimates, and may vary much from the truth.

It would probably be the wisest policy to adopt the Macadamised system where practicable, and to make portions of roads upon each of the other modes in order to bring them all to the test of experience.

On one point, however, there is no doubt in the committee that the present system should be entirely abandoned, and a mode adopted which shall sooner or later give a hard and uniform surface to the public roads. This is necessary, not only to facilitate the transportation of the produce of the State to market, but to redeem the community from the reproach of annually expending millions without effecting or even approximating to the object proposed by the framers of the law relating to common roads.

The mode of effecting that reform is a subject admitting of different opinions. To undertake at once to Macadamise all the roads in the State would be an effort, in the opinion of many, beyond the ability of the community. The cross roads in counties are not enough travelled to warrant such an expenditure at this time, and in general they are in better order than the more frequented roads. While the system of repairing roads, therefore, requires a total change in the agents employed to superintend its execution, it would probably be the best policy to apply the reform in the mode of constructing roads in the first instance to the post routes, and to devote the greatest portion of the money raised to rendering them perfect before undertaking those of minor importance. When those are once well constructed the annual expense of keeping them in order will be small, and the reform of the other roads upon the same principles can then be undertaken, until the public roads throughout the State shall be put in perfect order.

The changes which your committee think could be advantageously made in the present system with the view of producing such a result, are an alteration of the present law so as to establish five road commissioners in each county, who shall be empowered to order the construction and repair of all the stage roads, and to employ a surveyor, under whose superintendence these roads shall be constructed and repaired. Instead of assessing the farmer so many days' labor, the assessment should be made payable in money or in broken stone of the proper size and kind, to be delivered at specified places—such a quantity of stone to be an equivalent to a day's labor. The roads then could be repaired under the immediate superintendence of the surveyor, who should be

held responsible to the commissioners for their condition.

What is done in this way would then be thoroughly done, and in a few years the marked improvement of the roads would demonstrate the superior economy of those thus constructed.

Indeed so strongly is the committee impressed with the advantages of at once commencing this reform upon an extensive scale, that they would recommend the anticipation by way of loan on the credit of the State of one half of 20 years' assessments, the amount raised to be rateably divided, and at once applied under proper superintendence to the construction of the principal stage roads in the several counties of the State.

Inasmuch as the amount now annually raised for the repair of roads equals \$1,176,969; this sum to be thus raised by loan would be \$11,769,690, which could be immediately applied to the construction of those roads, leaving the sum of \$588,484 to be annually raised by assessment, and applied to the repair of roads, and a like sum to be appropriated to the repayment of the loan. To this might be added the tolls to be collected on particular roads, in case the Legislature should deem it expedient to make those who used the roads contribute, as in England, to their maintenance and repair. To this mode of maintaining roads may be fairly attributed the excellence of those in England, where the roads of particular districts are placed under the control of trustees, who have authority to manage the roads as a productive estate, and who are thus enabled to improve the roads at the expense of those who use them—borrowing money for constructing and repairing them, and repaying its principal and interest from the proceeds of the tolls.

If, after determining upon the construction of the principal roads upon proper principles, similar powers should be given to the County Commissioners for Roads, a great reform would be effected, and the means of transporting produce to market much facilitated, without increasing the annual assessments. The importance of this improvement in common roads would well justify such a step on the part of the State. With good roads, every farmer in the State would be enabled, at a comparatively small expense, to carry produce which is now useless to market. The difference in the expense of transportation to the first purchaser, so important an item in the ultimate cost of produce, would be 50 per cent., making a diminution of one half of the present cost. Taking the average amount of produce raised on a farm of 100 acres, beyond what is required for the use of the farmer, to be equivalent to 400 bushels of grain—an amount believed to be below the real quantity; and with the present roads fourteen journeys to the market town, with a two horse wagon, will be required to transport it to market—a labor which, if the average distance of each farm be estimated at 10 miles, would employ a wagon, horses and driver, fourteen days. With Macadamised roads, the same labor could be performed in six days, with more ease to the horses and less injury to the wagon, making a saving to every far-

mer in the State, of eight days in the transportation of the produce of a small farm, and a saving proportionably greater upon larger farms.

This illustration of the superior economy of good roads might be applied to other branches of industry, and their results would show an enormous expenditure of time and money thus indirectly made by the people of the State, in transportation on bad roads, to the amount, probably, of \$10,000,000 annually, a sum sufficient to put all the roads of the State in good order. This saving in time and money is not the only benefit that would accrue to the State from the adoption of the policy proposed. By the expenditure of the principal sum raised by loan, in constructing and repairing roads in the several counties, money would be circulated, labor employed, and the energies and enterprise of the whole community would be stimulated by the actual execution of a policy calculated to diffuse the benefits of public improvements throughout the State—not advancing one part at the expense of the whole, but giving to each county its just share, and conferring upon all equal, and at the same time, substantial benefits. Among these may be mentioned a more rapid increase of the population of the State.

With good roads the second and third class of lands may be made equally productive with the most fertile, where the roads are bad—the difference in the expense of transportation being more than an equivalent to the difference in the quantities produced.

Emigration from the State will be thus checked, and the better and more substantial class of emigrants from other States will be induced to settle here. A similar policy is recommended in relation to the construction of bridges. All the bridges over small streams, and many of those over the large rivers, should be made of stone, or brick, where stone cannot be procured. Such structures would be permanent, requiring little or no repair, and though more expensive in the construction, are more economical than wood, when the expense of construction and repair is spread over twenty years.

A similar mode might be adopted in constructing the bridges, i. e., dividing the annual assessments into two parts, the first to be appropriated for twenty years to the extinguishment of a loan equal to one half of twenty years' assessment, the loan to be applied, under the direction of the State, in constructing permanent bridges in the several counties, and the residue to be used for keeping those in repair, whose permanent construction is to be postponed.

Your Committee are aware that the policy recommended is liable to the objections that it will involve great expenditure, and that it is novel. Objections always ready with the timid, the unenterprising, and those who deem the existing condition of things as not susceptible of improvement.

The policy recommended, however, is not meant merely for the present generation. Like the public buildings and the canals of the State, and the aqueducts of cities, roads are intended to be permanent.



They belong to the State, an existence that is to last through ages, and her public works should all be constructed with reference to an equally enduring existence. Economy in a State is not consulted in limiting the expenditure to merely what serves the present occasion; but in looking forward beyond the wants of the present generation, and having carefully consulted the ability of the community, proportioning the expenditure to the importance of the object to be attained.

The subject referred to the Committee they deem of the highest importance, whether considered in reference to the present or the future, and they recommend that a memorial should be addressed to the legislature, expressing the views set forth in this report.

All which is respectfully submitted, in behalf of the Committee.

J. BLUNT, Chairman.

New-York, Jan. 9, 1836.

On motion of Mr. Gordon, it was Resolved, That a Committee of ten be appointed by the Chair, to report to this Convention subjects for its consideration.

The Chair appointed the following named gentlemen: Messrs. Gordon, Spencer, Bradish, Bloomfield, Titus, Jordan, Welch, Buel, Walworth, Leland.

Mr. Gordon stated that it was his intention to leave the city the following morning, and was excused from serving on the same, and Mr. Alvan Stewart appointed in his place.

The following resolution was offered by Mr. J. A. Spencer. "That it is expedient now to consider the resolution reported at the Utica Convention, in relation to the formation of a State Society."

The resolution, on motion of Mr. Kirkland, was laid on the table.

The Convention adjourned to meet in the Assembly Chamber to-morrow afternoon, at 3 o'clock.

Assembly Chamber, Wednesday, Jan. 13, 1836.

The Convention met pursuant to adjournment, Judge Cheever presiding.

Mr. Stewart, from the Committee appointed to report subjects for the consideration of the Convention, presented a report, together with a draft of a Constitution of a State Society, and which being read, the report was accepted.

Mr. S. then read the following report:

We believe there is a general feeling in the public mind, that an enlarged system of Internal Improvements, in the shape of Roads, Canals, and Railroads, is the true policy of the State of New-York. By what means shall this belief and feeling be rendered the most available, to advance these great improvements? This is a question deserving our most serious consideration.

We believe that nature has given to New-York a natural eminence in point of position and relation unsurpassed by any State or country on this continent. We believe her natural advantages—her natural capital—to be very great; but we also believe that to that we may add almost as much more, by developing her entire capabilities by a grand and judicious system of Internal Improvements. If a kind Providence had done more for us than it has, room would not have been left for man to manifest his gratitude—discover his genius, and exhibit his patriotism.

We believe the more that public improvements are multiplied, the reason for complaints for taxation for their support will be diminished. For when the real estate of an individual is augmented in value, by a public improvement, or a new facility created to aid him in locomotion, or a new avenue opened for importing merchandise or exporting the produce of his soil, he must have a feeble idea of moral obligation, would seek to evade the payment of his just part of such public work.

Taxation, toll, or impost, is the consideration money a people pay for a public blessing in the shape of an internal improvement. And we believe that the following is a fair rule by which to test the propriety of the State embarking in a public work:

Add the increased value of the lands and houses caused by the improvement running through the country where they are situated—add to this the time saved by man and beast—the reduced expense of the transit of merchandise or produce—add to this a reasonable sum for the agreeableness of manner of transacting business, by means of the improvement, as compared with old modes—then say if the interest on the capital sum these advantages are worth, exceed the interest on the capital required for the completion of the work, then make it. It is, in the opinion of the committee, demonstrated, if not mathematically, at least upon the principle of political economy, that the work should be prosecuted.

It is believed that were the present rates of toll preserved on the Erie Canal for 12 years to come, and the business transacted thereon was to increase in the same ratio it has for six years past, we should derive a revenue of three millions. Then say that half a million should be applied for repairs, improvements and use of Canal, we should still have left two and a half millions, or the annual interest, at 5 per cent. of 50 millions.

Your Committee have no question in asserting that whatever sum might be expended in the next twenty years, the State would reap a fourfold return. Every dollar expended in Internal Improvements, renders the State more desirable, more precious and more esteemed in the affections of its citizens, and draws forth their patriotic love. Every new mode of conveyance, by which time is saved, is a great object to the poor laboring man, for his time is his capital, and every hour lost in tardy locomotion, is a positive loss of his capital. A rich man thinks it hard to lose the interest of his money, but he is deeply affected at the loss of his capital; but the poor man who is travelling loses as much capital as he wastes of hours and days by a poor and tardy conveyance.

The Railroad is the poor man's road. It is the rich man's money expended for the benefit of himself and poor man.

Were an exclusive system of Internal Improvements adopted, and brought to completion, the facilities of intercourse would be so augmented, perhaps it is not too much to assert, that it would render life itself more valuable, by diminishing the stock of human misery, and adding to the state of human happiness.

The State of New-York will become, under the fostering care of intelligence and liberality, the garden of the American continent—a land in which Art shall give Nature fair play. New-York, standing at the gate-way of the ocean, holds the key in her hand which unlocks the treasures of the Americas.

This system goes far towards equalizing

advantages. It gives the parts of the State which are sequestered, advantages bearing some proportion to those parts of the land on which Nature has poured out her bounties.

Why is that man rich? Because he lives in the city of New-York. Why is that man poor, of equal capacity to make money? Because he lives on sequestered barrenness. This poor man, which we have supposed, is the victim of position. To reduce the amazing difference of position, between one citizen and another, not by pulling down the fortunate, but by raising him up who is not so, is the consequence of a liberal system of Internal Improvements. Again, the money expended in these improvements, will mostly remain in this State, among our own citizens. It is not as though we were importing these improvements from a foreign land, and sending our capital there to purchase them. No, we buy these improvements from our own citizens. We buy their labor, provisions and materials; our own citizens receive the consideration money for the construction of these public works. But without consuming more of your time in general remarks, the question is asked, by what means shall light be collected and imparted to the public mind, so that New-York need no longer hesitate to take the high station the God of nature intended her.

Your Committee believe a State Society consisting of gentlemen of intelligence, leisure and patriotism, who are willing to aid in developing and perfecting the resources of this State, who shall meet annually at your Capitol, and impart to the public the information acquired during the year by the members of the Society, will best promote the interest we have at heart. We take the liberty of submitting a draft of a Constitution.

Your Committee believe that a Society, of which the most ambitious literary man might be proud of a membership, is the best plan this Committee can recommend, to secure the great objects of this Convention; which is, to have a body of our most patriotic citizens constantly in the field of inquiry, and bringing forth from their treasures "things new and old," by which the public mind may at last see the path of internal improvements too plain to ever lose its way.

All of which is most respectfully, &c.

ALVIN STEWART, Ch'n.

Mr. Spencer called for the consideration of the resolution heretofore offered by him, and which was then laid upon the table. The resolution being the first of a series reported to the Convention at Utica, by the Committee of which Mr. Jas. E. Bloomfield was Chairman:

Resolved, That it is recommended to form a *State Society for the promotion of Internal Improvements*, and that this Convention, at its adjourned meeting, adopt means to organize the same; the duty of which Society shall be, to collect and diffuse such information as may be deemed of public utility. The Society shall consist of a member from each county in this State, who shall appoint such officers and agents, and adopt such by-laws and regulations as they may deem necessary.

Mr. Leland moved to amend the resolution so that it should read "for the formation of a Statistical and Internal Improvement Society." The amendment being withdrawn, the resolution was passed.



The consideration of the Constitution, as reported by the Chairman of the Committee of ten, being called for, the same was read by its articles and adopted, in the form and words following:

#### CONSTITUTION.

**ART. 1.** This Society shall be called "The New-York State Society for the promotion of Internal Improvements."

**ART. 2.** The object of this Society shall be to develop the resources of the State, to collect, preserve and impart information, on all subjects connected with the advancement and prosperity of the State, and the promotion of a general system of Internal Improvements.

**ART. 3.** The officers of this Society shall be, a President, two Vice Presidents, two Secretaries, one for correspondence, and the other for recording the proceedings of the Society, together with a Treasurer.

**ART. 4.** This Society shall consist of four members from the city and county of New-York, and one member from each of the other organized counties of this State.

**ART. 5.** The Society shall hold an annual meeting on the second Monday of January in each year, in the city of Albany, and report to the public the proceedings of the Society for the past year.

**ART. 6.** The officers of this Society shall be elected annually; a majority of the members thereof shall have power to alter this Constitution, to fill all vacancies occurring in their own body, and to elect, as honorary members, distinguished individuals residing out of this State.

**ART. 7.** Fifteen members of this Society shall form a quorum for the transaction of the ordinary business, and a less number shall have power to adjourn.

**ART. 8.** The Society shall have power to pass all necessary by-laws, rules, and regulations for its government.

**ART. 9.** A special meeting of this Society may at any time be called by the President or presiding officers thereof.

On motion of Mr. Spencer, it was

Resolved, That a Committee of twelve be appointed by the Chair, eight of whom shall be taken from the Senatorial Districts, one from each, to nominate suitable persons as officers and members of the State Society.

The Chair appointed the following gentlemen members of the Committee.

I. A. Spencer, A. J. Parker, Charles Borland, James Powers, Philip Kearney, D. D. Aikin, Ambrose L. Jordan, L. Stetson, Sands Higginbottom, L. Beardsley, D. D. Nixon, Bates Cook.

Convention adjourned to meet to-morrow at 4 o'clock in the afternoon.

Assembly Chamber, Thursday, Jan. 14, 1836.

Convention met pursuant to adjournment, Judge Cheever presiding.

Mr. Spencer, from the Committee of twelve, reported the following gentlemen as having been selected and nominated as suitable persons for officers and members of the State Society:

#### List of Members and Officers.

##### FIRST DISTRICT.

*New-York.*—Joseph Blunt, David C. Colden, James B. Murray, Philip Kearney.

*Richmond.*—Minthorn Tompkins.

*Kings.*—Gen. J. G. Swift.

*Queens.*—David S. Jones.

*Suffolk.*—Sidney Smith.

##### SECOND DISTRICT.

*Westchester.*—Allan McDonald.

*Putnam.*—Walker Todd.

*Dutchess.*—Albro Aikin.

*Ulster.*—Henry Barclay.

*Sullivan.*—John P. Jones.

*Orange.*—Robert Dennison.

*Rockland.*—Blauvelt.

*Delaware.*—Noadiah Johnson.

##### THIRD DISTRICT.

*Columbia.*—Jonas White.

*Rensselaer.*—Stephen Ross.

*Albany.*—Jesse Buel.

*Schenectady.*—John I. De Graff.

*Schoharie.*—Abraham L. Lawyer.

*Greene.*—Luke Kiusted.

##### FOURTH DISTRICT.

*Saratoga.*—John W. Taylor.

*Washington.*—Henry C. Martindale.

*Warren.*—William Hay.

*Essex.*—Henry Ross.

*Clinton.*—William Swetland.

*Franklin.*—Luther Bradish.

*St. Lawrence.*—Gouverneur Ogden.

*Montgomery.*—Isaac H. Tiffany.

##### FIFTH DISTRICT.

*Madison.*—John B. Yates.

*Oneida.*—Joshua A. Spencer.

*Oswego.*—Christian J. Burkle.

*Jefferson.*—Orville Hungerford.

*Lewis.*—Sylvester Miller.

*Herkimer.*—Dr. Doolittle.

##### SIXTH DISTRICT.

*Otsego.*—Erastus Crafts.

*Chenango.*—Augustus C. Welch.

*Broome.*—D. S. Dickinson.

*Tioga.*—Thomas Maxwell.

*Steuben.*—Ziba A. Leland.

*Tompkins.*—Heman Camp.

*Cortlandt.*—John Miller.

##### SEVENTH DISTRICT.

*Onondaga.*—Moses Burnet.

*Cayuga.*—Nathaniel Garrow.

*Seneca.*—Asher Tyler.

*Wayne.*—Wm. H. Adams.

*Ontario.*—Bowen Whitney.

*Yates.*—Aaron Remer.

##### EIGHTH DISTRICT.

*Monroe.*—Anstarchus Champion.

*Livingston.*—George Hosmer.

*Allegany.*—Philip Church.

*Cattaraugus.*—Frederick S. Martin.

*Genesee.*—David E. Evans.

*Orleans.*—William James.

*Niagara.*—Samuel De Vaux.

*Erie.*—Peter B. Peck.

*Chautauque.*—William Peacock.

For President, Jesse Buel.

For Vice Presidents, Luther Bradish, John B. Yates.

Corresponding Secretary, David C. Colden.

Recording Secretary, Robert Dennison.

Treasurer, John I. De Graff.

On motion of Mr. Stewart, the report was adopted by the Convention.

On motion of Mr. Spencer, the 6th article of the Constitution was amended by adding thereto the words "that the above named officers shall be elected annually;"

and the following was adopted as the 9th article of the Constitution:

"A special meeting of this Society may at any time be called by the President or presiding officer thereof."

Mr. Spencer moved the following resolutions, which were passed unanimously.

Resolved, That the several gentlemen who have been elected officers and members of this Society be, and they are hereby respectfully requested to accept thereof.

Resolved, That every officer and member who shall enter upon and faithfully discharge the important duties of his station, will deserve to be ranked among the public benefactors of his country, and receive the enduring gratitude of his fellow citizens.

Resolved, That every intelligent and patriotic citizen of this State, is earnestly requested to lend his aid in advancing the diversified and great objects committed to the charge of the Society.

Resolved, That this Convention, entertaining an entire confidence that the Society, by its organization, in the execution of its plan, will be influenced by no local or sectional jealousies, or political party considerations, but that its labors will be characterized by a patriotic devotion to the public weal.

Resolved, That in view of the rapid increase of the population in the Valley of the Mississippi, and the country bordering on the Lakes, whose wants are to be supplied from our Atlantic cities, and whose surplus products are there to find a market, an enlightened public policy demands of New York, the exertion of her utmost energies in the construction of public works, which shall expedite and cheapen communication between her cities and that vast region of fertile country.

Resolved, That the thanks of the Convention be presented to the Committee appointed at Utica for their very able report in part on the subject of Post and County Roads, and that they are respectfully requested to prosecute their useful labors, and report the results to the State Society organized by this Convention.

Resolved, That our thanks be tendered to the Honorable the Assembly for the use of their Chamber during the sitting of this Convention.

Resolved, That the proceedings of this Convention be published by the Corresponding Secretary, and that he be authorized to affix the names of its officers thereto.

On motion of Mr. Jordan, it was

Resolved, That this Convention do respectfully submit for the consideration of the Legislature the propriety of appropriating some suitable room in the Capitol for the use of the Society.

On motion of Mr. Kirkland it was

Resolved, That the thanks of this Convention be presented to the Honorable Samuel Cheever for the satisfactory manner in which he has presided over its deliberations.

On motion of Mr. Kirkland, the Convention adjourned.

SAMUEL CHEEVER, President.

SUMNER ELY,

CHARLES BORLAND, Jr. } Vice Pre'ts.

Fletcher M. Haight, } Secretaries.  
David C. Colden, }



THE FOLLOWING TABLE EXHIBITS THE RETURNS WHICH WERE RECEIVED FROM TOWN CLERKS.

## Albany County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Coeymans,	2723	85½	2105	\$125	5½	\$504	\$475
Knox,	2189	75	1413	30			30
Rensselaer,	3685	160	258	190	20	300	
	8597	310½	3776	\$345	25½	\$805	\$505

Coeymans, 24 bridges. Knox, 3 bridges. Total, 27 bridges. 7 towns, having 44,923 inhabitants, made no returns.

## Alleghany County.

Allen,	898	72	690	\$200			
Amity,	872	75	1271	250			\$500
Belfast,	743	50	700				250
Birdsall,	543	61	412	50			
Bolivar,	449	75	675	250			
Genesee,	219	27	360	250			
Haight,	655	53	1185	100			
Portage,	1839	150	1750	250			200
Rushford,	1115	60	1039	250			120
Scio,	602	19	716	250			200
	7941	642	8798	\$1850			\$1270

Allen, 7 bridges. The \$200 applies mostly to bridges. Amity, 15 bridges. Belfast, 16 bridges, of which one is built by the county, costing \$1000. Birdsall, 4 bridges: expense of bridges included in expense of roads. Genesee, no expensive bridges; roads mostly new. Portage, 10 bridges. Rushford, 21 bridges. Scio, 4 bridges. Total, 77 bridges, on which 400 days work in addition are given. 16 towns, having 18,335 inhabitants, made no returns.

## Broome County.

Lisle,	4378	40	1107½	\$	8	120	
Nanticoke,		35	225				
Vestal,	946	107	1000	75			
Windsor,	1280	120	1760				100
	6604	302	4087½	\$75	8	120	100

Lisle, 3 bridges, which cost \$1,400. Windsor, 1 bridge. Total, 4 bridges. 7 towns, having 10,975 inhabitants, made no returns.

## Cattaraugus County.

Franklinville,	903	68	1159	83	21	221	332
Fudom,	1505	95		1280			150
Hinsdale,	919	70	1250	250			230
Machias,	735	57	900				75
Napoli,	852	75	1392				
New Albion,	380	67	1016				25
Perrysburgh,	2440	140	2959	250			
	7734	572	8776	1863	21	221	812

Franklinville, 17 bridges. Fudom, 10 public bridges. Napoli, no public bridges, excepting those built by the town; roads in bad condition. New Albion, 2 bridges, which cost \$206.00. Total, 29 bridges. 14 towns, having 8,990 inhabitants, made no returns.

## Cayuga County.

Niles,		99	1740	22			
Auburn,	4486	17½	2480		2		
Ledyard,	2427	75	223	50			100
Locke,	3310	42	1241½				50
Mentz,	4143	100	2946				200
Sennet,	2297	70	2334		5½	275	
Scipio,	2691	54	1918½				
Sterling,	1436	80	2000	200			
Sumner Hill,		48	1000				
Victory,	1819	68	1693				25
Moravia,		55	1400				15
	22609	708½	18976	272	7½	275	390

Niles, in 1834, there were expended on the roads \$120. Auburn, 4 bridges. Ledyard, 5 bridges. Mentz, several bridges. Victory, 3 bridges. Total, 12 bridges. 12 towns, having 25,339 inhabitants, made no returns.

## Chataque County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Busti,	1680	50	1552				
Carroll,	1015	100	1142				250
Charlotte,	886	50	1279½	163			
Ellicott,	2101	73	2177	800			700
French Creek,	420	27	450				250
Mina,	1388	52	1041				30
Pomfret,	3380	119	3235½		40		350
Portland,	1771	56	1352				162
Ripley,	1647	80	1682½	60			100
Sherman,		59	867	150			
Stockton,	1605	72	1511				160
Westfield,	2477	83	2619				250
	18370	821	18907½	1223	40		2252

Carroll, 10 bridges. Ellicott, 8 bridges. French Creek, 8 bridges. Mina, 5 bridges. Sherman, 2 bridges, which cost \$150 each; some smaller ones, which cost from 40 to 60 dollars. Stockton, 6 public bridges, besides several smaller ones. Total, 39 bridges. No returns from 12 towns, having 16,301 inhabitants.

## Chenango County.

Columbus,	1661	65	1300		6		
Coventry,	1576	60	1083		7	80	
Green,	2962	167	2049	211	10	100	4600
Linckleau,	1425	30	727				
Macdonough,	1232	80	1365½				
Oxford,	2943	100	2330	100	4		175
Preston,	1213	50	1155				16
Smithville,	1859	100	1240				
	14671	652	11249½	311	27	180	4791

Green, 3 bridges. Preston, 25 public bridges, generally supported by an annual tax. Total, 28 bridges. No returns from 11 towns, having 22,567 inhabitants.

## Clinton County.

Beekmantown,	2391	150	1350	250	6		150
Champlain,	2456	88	1665	50			300
Plattsburgh,	4913	120	4500				
	9760	358	7515	300	6		450

Beekmantown, 25 bridges. The turnpike is a military one, made at the expense of the United States. Champlain, 24 bridges. Plattsburgh, 14 bridges, one cost \$2000, 1 cost \$1800, 2 cost \$1500, 10 cost about \$3000. Cost of repairing roads and bridges differ from \$250 to \$500. Total, 63 bridges. No returns from 5 towns, having 9584 inhabitants.

## Columbia County.

Stockport,		25½	1520				750
Austerlitz,	2245	100	1100		8	300	75
Canaan,	2063	40	2000		6	100	50
Claverack,	3000	72	1560		13	650	400
Clermont,	1203	34	587				300
Copake,	1676	135	1270		3		120
Ghent,	2783	75	1535	325	8	448	
Taghkanich,	1654	60	1000	250			
	14624	541½	10572	575	38	1506	1695

Stockport, 12 bridges. Canaan, 1 bridge. Claverack, 23 bridges. Clermont, 7 bridges; one wholly supported by the town. Copake, 20 bridges. Ghent, the expense of bridges included in that of roads. Taghkanich, 4 bridges: their expense included in that of roads. Total, 67 bridges. No returns from 10 towns, having 25,233 inhabitants.

## Cortland County.

Cincinnati,	1308	60	1200				
Cortlandville,	3673	110	2635	1			200
Freetown,	1051	36	644				20
Homer,	3307	80	2100				
Marathon,	895	50	950	150			832
Preble,	1435	46	867½				50
	11669	382	8396½	151			1152

Cortlandville, 5 bridges. Preble, 7 public bridges. Total, 12 bridges. A Railroad is anticipated. No returns from 5 towns, having 12,123 inhabitants.



## Delaware County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Andes,	1860	85	1422				
Bovina,	1340	89	997				
Colchester,	1424	110	1313	68			
Hancock,	766	90	832	250			
Harpersfield,	1976	100	1300		12		
Middletown,	2303	140	1951	250			50
Tompkins,	1774	90	1547	200			
	11531	704	9362	768	12		50

Andes, 1 bridge, cost \$500, now in a useless condition. Colchester, 1 bridge, cost \$1250, another is contemplated by the inhabitants, which will probably cost \$1200 or \$1500. Total, 2 bridges.

## Dutchess County.

Amenia,	2389	60	1339		7	170	17262½
North-East,	1689	70	1000				
Pleasant Valley,	2419	55	1350		6½	unk'n	100
	4168	185	3689		13½	170	273½

Amenia, 8 bridges. Pleasant Valley, 3 public bridges. No returns from 15 towns, having 46,758 inhabitants.

## Erie County.

Lancaster,	50	1750					250
Amherst,	2485	125	2605				500
Aurora,	2423	80	2606				250
Boston,	1521	77	1446	250			400
Clarence,	3360	7*	200				5
Collins,	2123	100	3250	150			100
Concord,	1895	220	1884	200			170
Hamburg,	3351	75	4000	50	4		250
Newstead,	1926	17	1438	188			
Wales,	1470	60	1716				838
	20556	811	20695	838	4		1925

Lancaster, 9 bridges. Amherst, 16 bridges. Aurora, 13 bridges; \$250, not enough for repairing bridges, should be \$500. Boston, 7 public bridges; roads in bad order. Clarence, the clerk has returned only the stage road. Collins, 15 bridges. Hamburg, 10 public bridges. Newstead, 3 bridges, which cost about \$500. Wales, 18 bridges. Total, 91 bridges. \*oStop Road.

## Franklin County.

Malone,	2207	90	1700	\$250			\$100
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12 bridges. 14 towns, having 17,080 inhabitants, making no returns.

## Genesee County.

Alabama,	816	75	1625	\$250			\$40
Bergen,	1508	42	1031	100			50
Bethany,	2374	60	1600	250			
Byron,	1936	75	1682				
Castle,	2264	80	1995				
Darien,	74	2500					200
Elba,	2678	125	2185	250			
Java,	60	2200	200				20
Middlebury,	2416	72	1626	92			40
Perry,	2792	75	1674	130			96
Warsaw,	2474	70	1810	250			
	19258	808	19928	1522			446

Alabama, 2 State bridges; causeway, or log road, the dearest and worst, in the long run. Bergen, 3 bridges. Bethany, 10 bridges. The ordinary means authorized by law wholly inadequate to render roads and bridges permanently good. Byron, 12 bridges, 2 of which cost for rebuilding, \$500, last year. Castle, 3 bridges, which cost \$350 to build. Darien, 12 bridges; this returned from Darien Centre. Java, 2 bridges; only \$75 have been received this year, for repair of roads. Middlebury, 7 bridges. Total, 51 bridges. No returns from 14 towns, having 32,889 inhabitants.

## Greene County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Hunter,	1960	60	1094	\$100	10	\$700	
Lexington,	2548	95	1700	150			\$100
New Baltimore,	2370	70	1685		11	unk'n	350
Windham,	3476	85	1800	75	13	800	
	10349	310	6274	325	34	1500	450

Lexington, 2 bridges. New Baltimore, 3 large bridges, several smaller ones, and are a heavy burden. Windham, 4 expensive bridges. Total, 9 bridges. No returns from 6 towns, having 19,176 inhabitants.

## Jefferson County.

Adams,	2995	80	2250				\$100
Alexandria,	1523		1650				250
Le Ray,	3430	125	2000	\$100			150
	7948	205	5900	100			500

Adams, 7 bridges. Alexandria, 6 bridges. Le Ray, 6 bridges. Total, 19 bridges. No returns from 15 towns, having 40,567 inhabitants.

## King's County.

New Eutrecht,	121	17	735				
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No returns from 5 towns, having 19,318 inhabitants.

## Lewis County.

Pinckney,	783	50	486½	100			507
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Pinckney, 3 bridges. No returns from 10 towns, having 14,175 inhabitants.

## Livingston County.

Caledonia,	1613	50	1409	\$59			
Geneseo,	2675	82	2754	150			
Groveland,	1703	94	1200	250			\$250
Leicester,	2042	75	2250	75			425
Livonia,	2665	100	2200				70
Sparta,	3777	106	2796½	250			200
Springwater,	2253	63	1800				
York,	2636	80	2937½	107			60
	19369	650	17338	\$891			\$1005

Geneseo, 2 bridges, besides several smaller ones; one rebuilt in 1833 at a cost of \$2770; the other to be rebuilt at a cost of \$3000. Groveland, 7 public bridges, costing from \$50 to \$100 each. Leicester, \$525 appropriated, this year, being \$100 more than usual. Livonia, 7 bridges. Sparta, 8 bridges. York, 3 bridges. Total, 27 bridges. No returns from 4 towns, having 3350 inhabitants.

## Madison County.

Georgetown,	1094	40	712		1		
Hamilton,	3220	100	2400		16		
Madison,	2544	70	1800		6		\$120
	6858	210	4912		23		\$120

Georgetown, several bridges. Hamilton, 16 bridges; \$800 appropriated for building stone butments to 2 or 3 of said bridges. Total, 16 bridges. No returns from 10 towns, having 32,179 inhabitants.

## Monroe County.

Chili,	2010	98	1319	50			250
Clarkson,	3251	124	3000	200			100
Gates,	7117	56	1641	150			
Henrietta,	2310	70½	1945½	250			
Mendon,	3057	96	2226				250
Pittsford,	1032	15	1488	50			33
Rush,	2101	70	1963				200
Sweden,	2938	72	2753	50			
Wheatland,	2239	60	1875				150
	26855	661	18210½	750			983

Chili, 9 bridges. Clarkson, 14 bridges. Gates, 2 bridges to build, which cost \$100. Henrietta, few bridges, which are but of trifling expense. Mendon, 30 bridges. Pittsford, 4 bridges. Rush, 3 bridges. Wheatland, 4 bridges. Total, 66 bridges. No returns from 7 towns, having 23,007 inhabitants.



## Montgomery County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Amsterdam,	3354	82	2681		12	600	150
Ephratah,	1818	66	1600	60			500
Mayfield,	2614	114	1623	40			200
Northampton,	1392	79½	977				300
Stratford,	552	50	402				325
Lake Pleasant,	266	62	243				150
	10001	453½	7526	100	12	600	1625

Amsterdam, the roads are in a very bad condition. Ephratah, 22 bridges. Mayfield, 20 bridges. Northampton, bridges are numerous. Stratford, 27 bridges. Lake Pleasant, 5 bridges. Total, 74 bridges. No returns from 13 towns, having 34,917 inhabitants.

## Niagara County.

Hartland,	1584	85	2400	150			25
Porte,	1491	70	1173	250			
Somerset,	871	61	1122	100			
	3945	216	4695	500			25

Hartland, 5 bridges. Porte, the expense of bridges included in days' work. Somerset, the roads generally bad, opportunity for making them good. Total, 5 bridges. No returns from 8 towns, having 14,540 inhabitants.

## Onondaga County.

Tabius,	3071	76	915		10	\$125	
Onondaga,	5668	121	2123	\$60	9	50	
Pompey,	4812	140	3550	4	2	unk'n	213
Skaneateles,	3812	85	3555	250	7½	50	
	17363	422	10143	314	28½	225	213

No returns from 13 towns, having 41,611 inhabitants.

## Ontario County.

East Bloomfield,	3861	75	1710				\$100
Bristol,	2952	250	1180				225
Canandaigua,	5162	152½	4064½		2	\$100	237
Hopewell,	2202	70	1330	\$20	6	258	97
Manchester,	2311	72	2245				200
Naples,	1943	45	1425	100			100
	18931	664½	11954½	120	8	358	959

East Bloomfield, 4 bridges. Bristol, 12 bridges. Canandaigua, 6 bridges. Hopewell, 8 bridges. Manchester, 5 bridges. Naples, 12 bridges. Total, 57 bridges. No returns from 8 towns, having 21,236 inhabitants.

## Orange County.

Crawford,	2019	62	2120		6		\$250
Goshen,	3361	80	2032		8		50
Hamptonburgh,	1365	51	1123				250
Montgomery,	3885	100	2626		8	\$160	123
Warwick,	5009	175	3360	\$600	20		250
	15639	468	11761	600	42	160	923

Hamptonburgh, 6 bridges. Montgomery, 6 bridges. Warwick, several bridges. Total, 12 bridges. No returns from 9 towns, having 29,727 inhabitants.

## Orleans County.

Gaines,	2121	68	1214				\$100
Shelby,	2048	85	2000	\$92			200
	4169	153	3214	92			300

Gaines, 5 bridges. Shelby, 7 bridges. Total, 11 bridges. No returns from 6 towns, having 14,604 inhabitants.

## Oswego County.

Hastings,	1494	75	1900	250			
Mexico,	2371	175	2604	75			125
Oswell,	501	16	440	250			100
Palemo,		50	1500	100			
Parish,	968	65	683	55			65
Redfield,	341	31	300	250			
Volney,	3629	75	2052	137			
	9604	487	9479	1117			290

## Oswego County—(continued.)

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
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Hastings, roads in a wretched condition. Mexico, 30 bridges. Oswell, 3 bridges. Redfield, 7 bridges. Volney, expense of bridges included in that of roads. Total, 40 bridges. No returns from 14 towns, having 17,500 inhabitants.

## Otsego County.

Burlington,	2459	80	1500				
Decatur,	1110	40	750				
Edmeston,	2087	75	1268½		6	90	
Exeter,	1690	40	1000				
Middlefield,	3323	112	1870½		16		390
Otego,	1148	100	1907		5	unk'n	150
Otsego,	4363	120	2000	370	8		300
Plainfield,	1626	60	1070		2	10	
Richfield,	1752	24	1287½	50	9	220	80
Unadilla,	2313	86	1660	100			115
Westford,	1645	63	1273				
	23497	800	15586½	520	46	320	925

Middlefield, 6 public bridges over Cherry Valley creek, and one-half of 2 bridges over the Susquehanna. Otego, 6 bridges. Otsego, 20 bridges. Plainfield, 5 bridges. Richfield, several bridges. Unadilla, 5 bridges. Total, 42 bridges. No returns from 12 towns, having 27,875 inhabitants.

## Putnam County.

Patterson,	1529	50	1150				
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No returns from 4 towns, having 11,099 inhabitants.

## Queen's County.

No returns.

## Rensselaer County.

Berlin,	2019	40	1200	500	6	unk'n	
Grafton,	1681	67	1400	50			
Greenbush,	3216	70	1670		14	700	250
Petersburgh,	2011	60	1621½				800
Schaghticoke,	3002	40	1750		3	180	300
	11929	277	7542½	550	23	880	1550

Berlin, the \$500 is much more than is usual. Petersburgh, 30 bridges. Schaghticoke, 6 bridges. Total, 36 bridges. No returns from 9 towns, having 37,495 inhabitants.

## Richmond County.

No returns.

## Rockland County.

Ramapo,	2937		1725		6		200
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No returns from 3 towns, having 6551 inhabitants.

## Saratoga County.

Corinth,	1412	80	1150				
Edinburgh,	1571	60	1024				25
Providence,	1579	67	1203				
Saratoga,	2461	87	1844	250	7	210	500
Sar. Springs,	2264	60	1723				200
Waterford,	1473	7	370		2	80	10
	10760	361	7314	250	9	290	735

Edinburgh, a float bridge. Providence, the bridges are kept in repair by labor assessed. Saratoga, 7 bridges. Saratoga Springs, 10 bridges: there is a railroad in the town, 5 miles long, which cost \$50,000: the bridges cost \$7,000. Waterford, 10 bridges. Total, 28 bridges. No returns from 14 towns, having 27,919 inhabitants.

## Schenectady County.

No returns.

## Scholarie County.

Cobleskill,	2988	62	2323		7		75
Jefferson,	1743	80	1200		8	60	
	4731	142	3523		15	60	75

Cobleskill, 3 bridges. No returns from 8 towns, having 25,171 inhabitants.

## Seneca County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Covert,	1791	63	1550				
Fayette,	3216	86	2667	250	12		350
Lodi,	1786	61½	1307½	50			218
Junius,	1583	55	950				
Romulus,	2089	70	1500	15			235
	10460	335½	7774½	315	12		803

Lodi, 7 bridges. Romulus, the bridges are short and high. Total, 7 bridges. No returns from 6 towns, having 10,581 inhabitants.

## St. Lawrence County.

Brasher,	826	57	820	\$250			
Canton,	2439	72	2800	250			
Depeyster,	813	33½	619				
Gouverneur,	1430	100	1649	250			\$100
Hopkinton,	827	40	617	250			
Lawrence,	1097	58	822	250	6	\$100	
Madrid,	3459	500	2346				250
Massena,	2068	88	763	250			300
Morristown,	1600	100	1870	180			320
Russell,	541	45	580	250			75
Stockholm,	1944	120	1924	250			
	23244	718½	22210	2180	6	100	1045

Brasher, 5 bridges; expense of building said bridges, \$2500. Expended for making roads, during last five years, \$3000. Canton, 3 bridges; one cost \$1300, one \$400. Gouverneur, 4 bridges. Madrid, 52 bridges. Massena, 3 bridges; original cost, about \$3000. Russell, 6 bridges. Stockholm, several bridges: the roads, although of great expense, are bad. Total, 73 bridges. No returns from 13 towns, having 13110 inhabitants.

## Steuben County.

Addison,	944	70	1200	250			100
Homby,	1572	50	900	150			
Jersey,	2391	100	1600				
Painted Post,	974	76	1257	250			20
Pulteney,	1724	67	1390	255			
Wayne,	1172	60	825	128			
	8707	423	7172	1033			120

Addison, 2 bridges; money for these 2 bridges raised by subscription. Jersey, 2 bridges. Painted Post, 1 bridge. Total, 5 bridges. No returns from 18 towns, having 25,044 inhabitants.

## Suffolk County.

Easthampton,	1668	120	471				
Riverhead,	2010	110	2000				50
	3678	230	2471				50

No returns from 7 towns, having 23,102 inhabitants.

## Sullivan County.

Fallsburgh,	1173	80	1268	250			15
Bethel,	1192	120	630	240	9	220	
Thompson,	2457	140	1650	150	20	400	100
	4722	340	2548	640	29	620	115

Fallsburgh, 1834, one bridge cost \$600, and a stone one \$1500. Total, 2 bridges. No returns from 6 towns, having 7642 inhabitants.

## Tioga County.

Barton,	972	90	1385	25			
Berkshire,	1711	50	720	50			200
Elmira,	2892	65	2300				125
Newark,	1027	65	1100				
Nichols,	1254	60	365				
Oswego,	3076	150	3000		10		250
Richford,		38	897		8	50	15
	11162	518	9767	75	18	50	590

Berkshire, 14 bridges. Elmira, 7 bridges. Newark, 3 bridges. Nichols, a toll-bridge across the Susquehanna. Oswego, bridges are numerous; one of them cost \$13,000, and has had \$200 expended on it for repairs. Richford, 1 bridges. Total, 26 bridges. No returns from 11 towns, having 22,689 inhabitants.

## Tompkins County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Enfield,	2332	70	1735	250			
Groton,	3597	114	2702				
Hector,	5212	684	5000	80			
Ithaca,	5270	80	4930	661	8	unk'n	
Lansing,	4020	200	2400				250
Ulysses,	3130	85	2120				200
	23561	1233	18947	991	8		450

Enfield, there have been about \$35 appropriated to build a bridge. Groton, a tax of \$2500 was raised to build a new bridge. Hector, one toll-bridge receives \$700 a year. Lansing, 8 bridges. Ulysses, 14 bridges; cost of said bridges \$2200. Total, 24 bridges. No returns from 4 towns, having 12,984 inhabitants.

## Ulster County.

Esopus,	1770	40	1122				25
Hurley,	1408	40	897	4562	10		
Kingston,	4170	91	2223	250	4½	300	45
New-Paltz,	5098	180	3330		9	500	250
Plattkill,	2044	79	1485		6½	215	
Shandaken,	966	24	853		18	unk'n	100
Ellen Ville,		95	2961				285
	11396	549	12871	4812	48	1015	685

Hurley, 6 bridges. Kingston, 2 bridges. New-Paltz, 6 bridges. Ellen Ville, 22 bridges; \$400 raised by voluntary subscription for the benefit of a road. Total, 36 bridges. No returns from 8 towns, having 25,154 inhabitants.

## Warren County.

Bolton,	1467	85	1173½				120
Caldwell,	797	44	567	20			
Hague,	721	13	600	150			25
Johnburgh,	985	66	877	250			80
Luzerne,	1362	65	1145	75			15
	5332	273	4332	495			240

Bolton, 2 bridges. Caldwell, 5 bridges. Hague, 6 bridges. Johnburgh, 5 bridges. Luzerne, 1 bridge. Total, 19 bridges. No returns from 4 towns, having 6464 inhabitants.

## Washington County.

Easton,	3758	90	2891	212			
Granville,	3881	200	3256		2		1000
Greenwich,	3847		1953				250
Hampton,	1069	30	775				
Kingsburgh,	2606	72	768	100			
Putnam,	718	35	532½				204
Salem,	2972	56	1274				
White Creek,	2446	80	1950				200
	21297	533	13399	310	2		1654

Easton, 3 bridges, annual expense included in that of roads. Granville, 9 bridges. Greenwich, 5 bridges. Hampton, 3 bridges. Kingsburgh, 2 bridges, expense included in expense of roads. Putnam, 2 bridges. White Creek, 2 bridges, one cost \$1500, the other \$2000. Total, 26 bridges. No returns from 9 towns, having 21,338 inhabitants.

## Wayne County.

Arcadia,	3901	175	3097	100			250
Galen,	3631	105	2500	250			
Lyons,	3603	105	2617				700
Ontario,	1585	40	1447	20			
Rose,	1641	48	1433	80			
Savannah,	886	51	674				10
Williams,	1801	56½	1695				
	17068	581½	13463	450			960

Arcadia, 6 bridges. Galen, 3 bridges, first cost, \$1500, second, \$600, third, \$600. Lyons, 6 bridges. Savannah, 1 bridge. Total, 16 bridges. No returns from 8 towns, having 16,575 inhabitants.



Westchester County.

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
Bedford,	2750	70	2438				50
Cortlandt,	3840	77½	1778	180	4		250
Greenburgh,	2195	44	1460				
New Rochelle,	1274	14	682	20	2½	25	
Rye,	1602	33	842½	25	6	40	40
Somers',	1997	45	1200				250
Westchester,	2362	37		750	12	466	250
Yorktown,	2141	70	1434		4	100	254
	18054	320½	9834½	875	28½	631	1094

Bedford, 7 bridges; \$600 have been raised during the last two

Westchester County—(continued.)

NAME OF TOWN.	Population.	Length of Public Road.	Days' Work.	Additional Money.	Turnpike.	Cost of Turnpike.	Annual Cost of Bridges.
years, in laying out and altering roads. Cortlandt, 15 bridges. New Rochelle, bridges kept in order by day's work assessed. Somers', 4 bridges. Westchester, 3 bridges. Yorktown, 9 bridges. Total, 38 bridges. No returns from 13 towns, having 18,402 inhabitants.							
Yates County.							
Barrington,	1854	75	1270				\$20
Barrington, 2 bridges. No returns from 7 towns, having 18155 inhabitants.							

In the columns of additional money, cost of turnpike, and annual cost of bridges, fractions of dollars are omitted.

Sixth Annual Report of the Superintendent of Graduation, Masonry, and Construction of the Baltimore and Ohio Railroad.

OFFICE OF THE SUPERINTENDENT OF THE }  
BALTIMORE AND OHIO RAILROAD. }

Ellicott's Mills, Md., 1st Oct., 1835.

To PHILLIP E. THOMAS, Esq.,

President of the Baltimore and Ohio Railroad Company:

Sir,—At the date of my last annual report, the graduation, masonry, and construction, of the Baltimore and Ohio Railroad, and of the lateral Railroad to Washington City, were rapidly advancing. I have now the gratification to report that the operations, on the Baltimore and Ohio Railroad, then in progress, have since been finished, and that the road was, on the first day of December, 1834, formally opened for travel and traffic from the "Point of Rocks" to Harper's Ferry. And that on the first day of July last, the construction of the lateral Railroad to Washington City had been so far advanced, as to admit, on that day, of the passage of a locomotive engine, with a train of cars, over it, very nearly as far as the north line of the District of Columbia, in the vicinity of Bladensburg, and on the 20th of that month was formally opened for travel to that line. Owing to a disappointment in the receipt of rails from England, the remainder of the line, extending from that point to the Pennsylvania Avenue, in the City of Washington, and embracing a distance of about five miles, could not be prepared for use before the 25th day of August, on which day it was opened, with appropriate ceremony, for the regular conveyance of passengers.

In addition to the accompanying tables, marked B 1, 2, 3, 4, 5, 6, and other papers, marked T. U. V. W. X. Y. Z., only a few observations are necessary, to present a full report of the proceedings of this department. These tables exhibit the work in detail and its cost, and the papers also furnish copies of such printed notices and other information as is generally given to persons disposed to take contracts under this Company, as well as the manner the various kinds of work are required to be executed when contracted for.

Graduation and Masonry of the Baltimore and Ohio Railroad.

The 6th Division of this road extends

from the end of the 5th Division at the "Point of Rocks," on the left bank of the Potomac river, to the bridge of the Messrs. Wager, across that river at Harper's Ferry. The first two miles and ten poles around the Narrows, occasioned by the lower and upper Points of Rocks, and the last two miles, beginning east of Miller's Narrows, and extending along those and Harper's Ferry Narrows, to the bridge at Harper's Ferry, were graduated for the reception of the railway, by the Chesapeake and Ohio Canal Company. The graduation and masonry of the intermediate space, comprehending a distance of 8 miles and 119 82-100 poles, were generally commenced about the 15th July, 1834, and were so rapidly prosecuted that the completion of the railway upon it was effected by the first day of the December following. The quantity of earth removed and supplied, inclusive of rock, on this intermediate space, was 150,224 cubic yards, at the gross cost of \$58,993.34, exclusive of contingencies, but inclusive of grubbing, clearing, and transportation; or at an average cost per cubic yard of 39 27-100 cents; or of \$42.21 a pole lineal, and of \$13,508.08 a mile. Table B No. 1 exhibits the names of contractors by whom this work was so energetically and satisfactorily executed, their prices, &c.

The masonry built upon this intermediate part of the 6th Division is detailed in table B No. 2, and is there shown to have amounted to 13,536 3-4 perches, of 25 cubic feet to the perch. It is contained in five bridges, numerous culverts, and two detached walls. Its gross cost was \$54,129.24, and average cost per perch \$3.99 86-100. The table referred to presents the names of the contractors and their respective prices.

Table B No. 3 is referred to for a succinct view of the cost of the graduation and masonry of the whole line of this road from Pratt street, Baltimore, to Harper's Ferry, and inclusive of the branch road to the city of Frederick. By this table the quantum of the graduation of the whole line is shown to have required the removal and supply of 2,660,937 cubic yards of earth, inclusive of a large proportion of rock, at a cost of \$883,140.74, and the construction of 93,419 1-2 perches of masonry, at a cost of \$372,497.01, aggregately amounting to the sum of \$1,235,637.75, being at the average rate of \$15,561.58 a mile. By an inspection of the recapitulation to this table, it will be perceived that the average aggregate cost

per mile of the graduation and masonry declines in amount regularly from the end of the 1st Division to the termination of the road as follows, viz: at the end of the 1st Division it is \$46,354.81—of the 2d \$29,252.35—of the 3d \$20,376.18—of the 4th \$17,671.72—of the 5th \$16,128.84—and at the end of the 6th \$15,840.04,—and, inclusive of the lateral branch to the city of Frederick, it is only \$15,561.58.

By this table it is further shown, that the average cost per cubic yard of the 2,590,689 yards of earth, inclusive of a large proportion of rock, as well as of the grubbing and clearing, which was handled in effecting the graduation of the line to Harper's Ferry, was 32 12-100 cents, and that the average cost of the whole per cubic yard, when the 70,248 yards, fully half of which was rock, and its cost, of the branch to Frederick, is added, is raised to 32 43-100 cents.

And that the 93,419 1-2 perches of masonry, inclusive of the cost of four superstructures of wood, one of which, that across the Monocacy river, was very extensive, cost at an average, on the whole line, to Harper's Ferry, inclusive of the branch to Frederick, \$3.98 84-100 a perch.

This large quantum of masonry is partly contained in a very great number of gothic and common culverts, and a few detached walls, but much the larger portion of it in the following described bridges, all of which were designed by my late intelligent and energetic assistant, Mr. Robert Wilson, except the Carrollton, the Patterson, and the Oliver viaducts, which were designed by myself, and that with a superstructure of wood across the Monocacy river, which was designed by Mr. Lewis Wernwag, its enterprising contractor, viz:

The "Carrollton viaduct," over Gwynn's falls, of two arches of 80 and 20 feet chord respectively.

The "Patterson viaduct," of four arches, 2 of 55 feet, and 2 of 20 feet chord respectively, built across the Patapsco river.

The "Oliver viaduct," of 3 arches of 20 feet chord each, over the Frederick turnpike road, and Ellicott's branch.

The bridge across the Monocacy river, of 3 spans of 110 feet each.

One across the greater Catoctin creek of 2 arches, of 50 feet chord each.

One over the Frederick turnpike road, and a contiguous branch, near Parrsville, of 2 arches, of 20 and 10 feet chord, respectively.

One across the west fork of the Patapsco river, near Marriottsville, of one arch of 40 feet chord.

One across Ballinger's creek of 1 arch, of 30 feet chord.

Four of 1 arch each, of 25 feet chord, viz: across Gadsby's run, Gillis' falls, Bush and Israel's creeks.

Seven of 1 arch each, of 20 feet chord, viz: across Gwynn's run, Robert's run, Caton's branch, a branch opposite the Union factory, Piney run, the Tuscarora, and lesser Catocin creeks.

One of 20 feet span, superstructure of wood, over the Frederick and Georgetown turnpike road.

One of 1 arch, of 15 feet chord, across Dorsey's run, near the Avalon works.

One across Clagget's branch, of 15 feet span, superstructure of wood.

Three of 1 arch, of 14 feet chord, viz: over Warfield's road, Davis' and Marriott's branches.

Nine of 1 arch each, of 12 feet chord.

One of 12 feet span, superstructure of wood, and four of 1 arch each, of 10 feet chord.

#### *Bridge across the Potomac River, at Harper's Ferry.*

This heavy work has been very recently put under contract. It is expected that it will be completed within one year. The contractors are Charles Wilson, for the masonry, and Lewis Wernwag, for the superstructure of wood, both of whom are well known to the Company as contractors of skill, energy, and fidelity.

#### *Construction of the Baltimore and Ohio Railroad.*

As soon as practicable after the superintendency of this branch of the service of the Company was confided to me, measures were adopted to obtain a supply of the requisite materials for the construction of a single track of railway from the "Point of Rocks" to Harper's Ferry, and for such parts of a second track, as were indispensable, as passing places. It was found very difficult to obtain a supply in the short time it was desired. The greater portion of the string pieces are of yellow pine, procured in North Carolina, and partly conveyed by the Chesapeake and Ohio Canal from Georgetown, and partly by the Railroad from Baltimore to the "Point of Rocks." The sleepers were procured in the immediate neighborhood of the work. The plan upon which the work was executed is fully set forth in the accompanying paper Z. The horse path was paved in such places where the railway was in contact with other roads, and particularly in the street of Berlin, at Weyerton and at Harper's Ferry Narrows, at which latter places its site is also that of the Frederick and Harper's Ferry turnpike roads. The remainder was Macadamised in the best manner, with stone of the hardest quality, reduced to particles not exceeding four ounces in weight. Twelve miles and 119 5-10 poles of first track, and 295 80-100 poles of second track and ten turnouts were

laid, at a gross cost of \$47,353.49, inclusive of the cost of all materials, (except the prime cost of the rails,) their inspection, transportation, distribution, &c., and of the cost of the horse path, superintendence, and all other contingent expenses, which is an average cost of \$3,561.25 a mile. But the prime cost of 22 tons of rails, the quantity used on a mile, at \$45 a ton, or \$990 a mile, must be added to \$3,561.25, which shows the actual cost per mile to have been \$4,551.25, inclusive of the cost of nearly, if not all, the turnouts which will be necessary when the second track shall have been laid continuously throughout the whole line.—The horse path cost at the high rate of \$783.12 84-100 a mile, owing to the inconvenience of obtaining stone of suitable character, and the rapidity with which the work was executed. The second track may be laid at a less average cost.

The contractors who laid the rails were Messrs. John Littlejohn, Matthew Borland, and James Thompson—the turnouts were inserted by Messrs. Reuben Aler and Jesse Hay, and the horse path was formed by Messrs. Thos. M. Macubbin and David Lemmon.

#### *Graduation and Masonry of the Lateral Railroad to Washington City.*

This road was divided into five parts, denominated the First, Second, Third, and Fourth Divisions, which terminate at the north boundary line of the City of Washington, and the City Division, which ends at the basin of the city canal at 6th street west, in Washington, which has yet only been graduated as far as the Pennsylvania avenue.

The graduation of the first division was commenced, generally, about the 10th of October, 1833; that of the second and third, and 1st section of the fourth, about the 20th of January, 1834; that of the 2d and 3d sections of the fourth division, about the 1st of January, 1835—and that of the city division, about the 1st of May, 1835.

Three of the most difficult and expensive sections of the second division, viz: the 1st, 4th, and 8th, were placed under the management of agents of the Company. For my views on the subject of effecting the graduation by agents of the Company, the accompanying paper marked S. is respectfully referred to.

Table B No. 4, exhibits in detail the several sections, the names of the contractors and others by whom the work was performed, the prices, quantum of earth handled on each section, &c. From this table it appears that the whole quantum of earth removed and supplied on these several divisions, inclusive of 32,727 1-2 yards of rock, which occurred on the 1st section of the 1st division, and was the only rock met with in the excavations of the whole line, was 1,991,352 cubic yards, which was handled at a cost of \$664,530.08, or at the average cost of 33 37-100 cents a yard, inclusive of the grubbing, clearing, and transportation.

The 1st section of the second division was placed under the management of that

experienced and faithful agent, Mr. Jonathan Jessop, by whom it was most satisfactorily conducted to its completion.

To the management of the 4th section of the second division, Mr. John Watson was assigned. Mr. Watson had been long and advantageously known in this community as the efficient superintendent of the repairs upon the Frederick and Boonsboro' turnpike. He continued to manage this section in the most satisfactory manner, until his lamented death, which occurred late in the month of November, 1834, at which time the graduation was so nearly completed, that about two weeks more of his efficient services would have finished it.

It is due to the memory of Mr. Watson for me to state, that a more faithful and competent agent could not have been selected. After an intimate intercourse with him as a manager of public works for more than seventeen years, I am enabled to say that, during all that period he conducted himself in the most exemplary manner, both as a gentleman and public officer.—His industry, energy and unremitting attention to the duties confided to him were rarely equalled and could not be surpassed. His veracity and integrity were as unimpeachable as his fidelity was unquestionable. He was generous almost to a fault, and as brave as he was generous. The loss of such a man under any circumstances is a public calamity, and when we call to mind the sudden and shocking manner by which he fell, his death must always be remembered with feelings of unfeigned regret and sorrow.

The management of the graduation of the 8th section of the 2d division was confided to Mr. Trueman Belt. Mr. Belt conducted it in a satisfactory manner until it was nearly completed, only about 4000 yards of excavation remaining, when he discontinued his operations.

Table B No. 5, exhibits the names of the contractors by whom the masonry was built, their respective prices, the character and cost of the several structures, &c. With the exception of the "Thomas Viaduct," across the Patapsco river, the masonry was generally commenced, simultaneously, with the graduation of the divisions. That stupendous structure was begun on the 4th of July, 1833, and completed by its energetic contractor, Mr. John McCarty, of the State of Ohio, on the 4th of July, 1835. The beautiful and imposing design of that viaduct, was furnished by B. H. Latrobe, Esq., Civil Engineer, and the designs of all the other structures on this road were prepared by my assistant Mr. Robert Wilson, who superintended the construction of all the masonry. The whole quantum built, is shown by the last table referred to, to have been 46,906 3-4 perches, of 25 cubic feet to the perch, at a cost of \$275,167.21, or an average cost per perch, of \$5.86 62-100.

These 46,906 3-4 perches of masonry are contained in many culverts, one very heavy wall connected with the "Thomas Viaduct" and in the following described fifteen bridges, viz:

The "Thomas Viaduct" over the Patapsco river of 8 arches of 58 chord, each.



One, of one arch of 60 feet chord across the Greater Patuxent river.

Two, of 1 arch each, of 50 feet chord, across the Lesser Patuxent river, and the north-west branch, the latter near Bladensburg.

One, of five spans, of 25 feet each, over the Paint Branch, superstructure of wood.

One, of one arch, of 20 feet chord, across Hammond's branch.

One, of one arch of 18 feet, over Deep run.

One, of 2 arches of 14 1-2 feet chord each, across the Tiber creek in 1st street west, in the city of Washington.

One, of 1 arch, of 15 feet chord, across Budd's run.

One, of 1 arch, of 14 feet chord, across the east Branch of Tiber creek, in the Delaware Avenue, Washington.

One, of 1 arch, of 11 feet chord, over Hopkin's road.

Three, of one arch each, of 10 feet chord, viz: over Piney run near Vansville, Duel run, near Bladensburg, and Pierson's Branch near the north line of Washington; and

One, of 8 feet chord, in the District of Columbia.

Table B No. 6, presents a full view of the cost of the graduation and masonry separately, and aggregately, on each section and on the whole line, and shows the whole length of the line from the point of deflection from the Baltimore and Ohio Railroad, to its present terminus at the Pennsylvania Avenue in the city of Washington, to be, 30 miles and 112 poles, and the aggregate cost to have been \$939,697.29, or at the average rate per pole lineal of \$96.75 63-100, or per mile \$30,962.01 9-10. The superintendence and all other contingent expenses amounted to the sum of \$19,475.93, which added to the above sum of \$939,697.29, produces the sum of \$959,173.22 as the entire cost of the graduation, masonry, superintendence, and all contingent expenses of this road, which is at the rate of \$98.76 16-100 per lineal pole, or of \$31,603.73 12-100 per mile.

The estimate of the graduation, masonry and contingent expenses as far as the New Jersey Avenue, a point about 1-4 of a mile short of the present terminus of the road, was \$1027,116.33, being \$67,943.11 cents more than the actual cost, although about 1-4 of a mile more distance, has been graduated, than was included in the estimate.

#### Construction of the Lateral Railroad to Washington City.

The length of single or first track of Railway which has been laid is 30 miles and 107 57-100 poles. There has also been laid of second track, a distance of 5 miles and 130 43-100 poles. The aggregate length of 1st and 2d track is then 35 miles and 238 poles. These Railways were partly formed of scantling and partly of logs—for a particular description of each kind, reference is made to the accompanying paper marked Y.—Of the first track, or continuous Railway, 17 miles and 175 poles were constructed with scantling, and 12 miles and 252 57-100 poles were laid with logs; and of the 2d track, 4

miles and 245 97-100 poles were formed of scantling and only 204 46-100 poles of logs. The scantling track is a little more costly than that made of logs, but is greatly preferable and believed to be more durable. It can, in the first instance, be more accurately constructed, and when out of repair, is more easily adjusted, than the log track. Besides it does not so frequently get out of adjustment, because of the greater perfection of its system. With the exception of a short piece in Washington, the 2d track is only laid through the several deep cuts, where it answers the purposes of passing places for the cars, and at the same time affords great facilities in keeping the road clear of the avalanches to which the deep cuts are liable.

The entire first track is laid with the deep or edge rail, except that part extending from North Capitol street to Pennsylvania Avenue in Washington. Of the 2d track 300 6-10 poles on the 2d Division and 248 7-10 poles on the 4th Division, are laid with flat rails, such as are used on the Baltimore and Ohio Railroad; all the remainder of the 2d track was laid with the deep or edge rail. Where the flat rail was used, (and it was only used because there was not a sufficient supply of the edge rail) small strips of scantling 4 x 2 inches, were first spiked to the scantling which had been laid for the reception of the edge rail. These strips were necessary to allow the rail to be laid over the centre of the scantling beneath them, and also to make up the disparity in depth or thickness, between the two kinds of rail. It is found to make a very good Railway. They can be easily removed when a further supply of the deep rail is obtained, if it should be then thought expedient to do so.

The whole cost of these 35 miles and 238 poles of Railway thus laid, and of 12 1-2 turnouts, including the cost of lumber, chairs, screw bolts, spikes, and the cost of all other material (except the prime cost of the rails) inspection, transportation, distribution, workmanship, superintendence and all other contingent expenditures, has been \$156,627.86,—being at the rate of \$13.69 1-3 a pole lineal, or of \$4,381.96 1-2 a mile. In the above amount the sum of \$5,707.43 expended for suitable implements, sheds, and workmanship, necessary to straighten the rails and dress their ends, is included. The prime cost of the edge rail is assumed at \$50 a ton, and 63 tons are estimated to the mile, which makes \$3,150 a mile as the prime cost of the rails of a single track. This sum being added to the above, gives \$7,531.96 1-2 as the entire cost of a mile of singlerailway on this road, inclusive of the cost of 12 1-2 turnouts, or for the whole distance which has been laid, viz: 35 miles and 238 poles the grosssum of \$269,220.67.

On the remainder of the second track, fewer turnouts will be required, than have been inserted; the transportation of the materials will be done chiefly on the Railroad, and of course cheaper; the graduation which the contractors of the 1st track were required to perform, will be dispensed with altogether; it may be therefore assumed that the construction of it will not cost as much as the first, by at least the sum of

\$531.96 1-2 a mile, leaving as its actual cost, the sum of \$7,000. The remainder of the 2d track is in length 24 miles and 297 14-100 poles, which at \$7,000 a mile, will cost \$174,499.93 3-4. This sum being added to the cost of that already constructed, viz: 269,220.67, gives the gross sum of \$443,720.60, as the total cost of two continuous tracks of Railway, from the Baltimore and Ohio Railroad, to the Pennsylvania avenue, in Washington, a distance of 30 miles 107 57-100 poles.

The estimate for two tracks as far as the New-Jersey avenue, about 1-4 of a mile short of the distance to the Pennsylvania avenue, was \$432,780.05. The actual cost will therefore probably exceed the estimate, about the sum of \$10,940.67. From this excess it would be proper to deduct the cost of straightening the rails, and dressing their ends, an expense not contemplated when the estimate was made. Without, however, subtracting any thing on this account, it will be found, that when the excess of cost in this case, viz: \$10,940.67, be subtracted from the excess of estimate over the actual cost of the graduation and masonry before shown to be \$67,943.11 the actual cost of all the work, has fallen short of the gross estimated cost, the sum of \$57,002.44: and if but a very moderate allowance be made for the excess of distance actually constructed over that estimated, it may very reasonably be assumed, that the whole actual cost of the road will be less than the whole estimated cost, by the sum of at least \$60,000.

The rails were laid on the 1st division—on the 2d, and 3d, sections of the 4th division, and on the city division, by Mr. Benjamin Cornelius,—Mr. James Giddings, laid them on the 2d, division, and Mr. John P. Cowman, laid the 3d division, and the 1st section of the 4th division. All the turnouts were inserted by Messrs. Reuben Aler, and Jesse Hay.

#### Expenditures.

The whole amount expended by me in the service of the Company up to this date, and which has been regularly and duly accounted for, has been two millions, four hundred and ninety-one thousand, six hundred and thirty-eight dollars and thirteen cents. This large sum has been applied as follows, viz:

To the graduation of the Balt. & O. R. R.	\$863,140.74
To the masonry on ditto,	372,497.01
To the payment of the contingent expenses incurred on account of the graduation and masonry, viz: superintendence, instruments, advertising, &c. &c.	40,396.44
	<hr/>
	\$1,276,034.19
To the payment of the right of way, and damages generally on that road.	\$26,417.02
To the construction of the 6th division of said road, viz:	
Materials, distribution, &c.	\$21,043.56

Workmanship,	14,531.10
Horse path,	10,413.03
Contingent expenses,	1,365.80

**\$47,353.49**

To the repairs of that road for the 6 months, that that branch of the service was under my superintendency,	\$11,647.66
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Total expenditure on the B. & O. R. R.	\$1,361,452.374
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To the graduation of the Lateral Railroad to Washington City.	664,530.08
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To the masonry on do.	275,167.21
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To the contingent expenses, incurred on account of the graduation and masonry, viz: superintendence, instruments, advertising, &c. &c. &c.	19,475.93
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**\$959,173.22**

To the construction of said road, viz: materials, distribution, &c.	109,183.43
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Workmanship,	37,108.99
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To contingent expenses, viz: superintendence, advertising, &c. &c. &c.	10,335.44
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**\$156,627.86**

To repairs whilst under my superintendency,	3,502.98
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Total expenditure on the Lateral R. R. to Washington,	\$1,119,304.06
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Total expended on the graduation, masonry, construction, and repairs of both roads,	\$2,480,756.434
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Expended in the purchase of sundry tools, lumber, &c. &c. which was afterwards delivered to other officers of the Company,	10,881.693
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Total expenditure in the service of the Company,	\$2,491,638.13
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An examination of the preceding statement, will show that the contingent expenditures on the whole work, which has been executed under my direction, have not amounted to three per cent. on my other disbursements.

It is very gratifying to me to be able to state that, although the operations of my department have been very extensive for the last two years, no loss, to my knowledge, has occurred to any of the mechanics or laborers employed on the different works, except in a single instance, where a few laborers in the employment of a sub-contractor, lost a small portion of their wages.

The following extract from my report of 1832 may, with great propriety, form a part of this. The subject is a very important one.

"The regulation prohibiting the use of ardent spirits, first adopted with your sanction in 1829, has been steadily and rigidly

adhered to, and has had, I am confident, a very beneficial influence upon the work. The contractors so generally acquiesced in this regulation, and complied with this stipulation of their contract so faithfully, that I had, only in a single instance, to perform the unpleasant duty of dismissing one of them from the service for an infraction of it. I cannot, however, refrain from again calling your attention to the fact, that licenses are so cheaply and so easily obtained in this State, where the sale of them appears to be only for the purposes of revenue, that grog shops became very numerous in the immediate vicinity of the line, and were highly prejudicial to the laborers, to the contractors, and to the progress of the work; and my opinion remains unchanged, that a legislative enactment, preventing the vending of ardent spirits within a specified distance of public works, could not fail of producing good effects, or rather of preventing much evil."

In conclusion, it is proper for me to present to your favorable notice the names of such assistants as have aided me in the superintendency of the heavy and arduous operations of the last two years. Mr. Robert Wilson not only superintended the construction of the masonry during that period, but also from the commencement of the road. As before remarked, he drew the designs of many of the numerous structures which have been erected, and their permanency affords ample testimony of the attention he bestowed on their construction. They will remain lasting monuments of his ability and fidelity. Mr. John D. Steele entered the service about two years ago, as principal assistant superintendent of Graduation and Construction, and to his talents, exertions, and unceasing industry, the work is mainly indebted, both for the fidelity of its execution and rapid completion. I have learned, with great pleasure, that the President and Directors have testified their approbation of his services, by appointing him to a trust of great responsibility. Messrs. John Miller, Paul H. Borland, Thomas C. Atkinson, William Matthews, John Patterson, Hopewell Dorsey, George McLeod, J. C. Price, Oliver C. Morris, George Holtzbecher, D. A. Waterson, Caleb B. Moore, Wm. K. Coulter, Wm. P. Elliott, and C. H. Matthews, rendered, at various times, and for periods of different durations, very valuable services, on the graduation and construction, as did also Mr. Christian Slemmer, in his office of Inspector of Lumber, and Wm. S. Woodside, as clerk.

It is with great regret, that I have to state, that Jonathan C. Price, a young man of most amiable deportment and of high promise in his profession, died whilst in the service of the Company, and not long after he entered it, much lamented by those who enjoyed the pleasure of his acquaintance.

Respectfully submitted.

CASPER W. WEVER.

The following letter is from a friend now on a tour through the West, from whom we hope to receive many others. Should he not

forget us amidst the numerous objects of interest within which he will meet on his way, our readers will hear from him again.

For the New-York Farmer.

#### LETTER I.

QUESTION—Where you bound, stranger?

ANSWER—I am going to the Far West, sir.

Lancaster, Penn., Nov. 10, 1835.

Dear Sir,—I feel inclined to scribble a little this evening, and if in your judgment, any of your readers will take the trouble to read this letter, publish it; if not, burn it. After leaving Philadelphia and arriving at the Schuylkill, a distance of 4 miles, the railroad is carried over a neat bridge, and the cars drawn up an inclined plane by a stationary engine, one hundred and eighty-four feet; although few accidents have happened, travellers seldom ride up, as, should the rope break, certain death, and that of the most awful kind, would be the result. It is contemplated to carry the entrance into the city by some other direction, which will, 'tis said, avoid the necessity of a plane, and which will add exceedingly to the transportation; after ascending the plane locomotives are attached to the cars, and passengers and merchandise are hurled along with the usual rapidity that these "terrible criters" (as my Kentucky friend calls them,) travel. The road belongs to the State, and also the engines, for which a regular charge is made to proprietors of cars and merchandise. They have not as yet given much attention to transporting animals, except hogs, and they are brought down in great numbers, and with profit to the drovers, as they accomplish but a few miles per day when driven, and loose considerable in weight—this road already reaches to Columbia on the Susquehanna, passing directly through the flourishing town of Lancaster. It has however reduced the price of lands in the vicinity of Philadelphia, and increased the price in the interior; a farm which 3 years since cost \$130 per acre, 6 miles from Philadelphia, and which has been much improved, sold a few days since at \$94. Many anecdotes are related of some of the Dutch farmers that opposed the road. One was asked for his reason, when he was at the same time told it would pass through his farm, and enhance the value very much. "Vy when dey brake one of dere rails dey will go and tak one from my fense." Another said chestnut timber was then scarce, but to build a road to Pittsburgh of rails it would take all that was in the country. But with all that is said in ridicule of them, they show many evident good results from their cautious system of farming. Nature has done much for those located in the valleys of Cheshire, Lancaster and York counties, as to the quality of their soil. The landscape also through those counties is not equalled in this country, and if they had hedges where they had post and rail fence, it would exceed any that I ever saw, even in old England. Their barns surpass those of any other country on



earth, and the free use of whitewash on the outbuildings and fences have a beautiful contrast with the luxuriant clover fields.—I regretted being hurled along so rapidly when there was so much to see, but after staying a day at this place, I shall proceed more at my leisure. I will close this letter by giving you a description of one of these Dutch farms, by a quotation from Washington Irving's description of one on the North River, for when you see one Dutch farm you see them all. "A great elm tree spread its branches over his residence, and near which bubbled a spring of the softest and sweetest water passing through the milkhouse, and then stealing away through the grass to a neighboring brook, that bubbled away through the alders and dwarf willows. Hard by the house was a vast barn, that might have served for a church; every window and crevice of which seemed bursting forth with the treasure of the farm; the flail was busily resounding within from morning till night, swallows and martins skimmed twittering about the eaves, and rows of pigeons, some with one eye turned up, as if watching the weather, some with their heads under their wings or buried in their bosoms, and others swelling and cooing and bowing about their dames, were enjoying the sunshine upon the roof. Sleek and unwieldy porkers were grunting in the repose and abundance of their pens, from whence sallied forth now and then troops of sucking pigs, as if to snuff the air—a stately squadron of snowy geese were riding in an adjacent pond, conveying whole fleets of ducks—regiments of turkeys were gobbling through the farm yard, and Guinea fowls fretting about it like illtempered housewives with their peevish discontented cry. Before the barn door strutted the gallant cock, that pattern of a husband, warrior, and a fine gentleman, clapped his burnished wings, and crowing in the pride and gladness of his heart, sometimes tearing up the earth with his feet, and then generously calling his ever hungry family of wives and children to enjoy the rich morsel he has discovered."

Yours, &c.

B. P.

For the New-York Farmer.

MANAGEMENT OF PUMPS IN SEVERE FROSTY WEATHER.

By W. R.

Mr. Minor: As many of your readers, like myself, may have experienced much inconvenience from the freezing up of their pumps in winter, and incurred an additional expense in the purchase of water for domestic purposes, I shall state for your and their information the simple plan I have hitherto adopted with my pump to prevent its freezing: which, with a very little extra trouble of twice drawing the boxes yearly, insurest he use of the pump, and consequently of the water, in the severest weather.

First, I take out the spear with the upper box, then draw out the lower box, or get some

one to do it: at or near the centre of the clapper of the lower box I bore a hole with a gimblet, about the size of a 12 penny nail, (this hole is to suffer the pump to lose the water in 5 or 6 minutes after each using,) this done, I place the boxes in the pump as before; and by turning into it about two gallons of water\* (all at once) the pump may be fetched, as it is called, by a common well known operation of working the handle half a minute, with very short and quick strokes. When a supply of water is obtained for present purposes, an additional two or three gallons must be saved and kept from freezing to fetch the pump with, whenever a fresh supply of water is again wanted. The hole through the clapper of the lower box, as before observed, allowing the pump to lose the water in 5 or 6 minutes after each using, leaves all that part of the pump above the surface of the water in the well empty; consequently there will be no water left above the box to freeze.

The foregoing has been the practice with my pump, and I derive great benefit from it. I last winter neglected the precaution till too late, and had to buy water about five months in consequence. The little trouble here pointed out, has no proportion to the inconvenience arising out of the pump's freezing up; incurring the expense of having to buy water, or to send for it a great distance. The pump best suited for winter use, and indeed for all domestic purposes, is the common ship pump, which admits of easily putting the water in at the top, at each operation.

In the spring of the year, when there is nothing further to fear from the frost, draw the boxes again, and screw a short iron screw into the hole of the lower box clapper, which will cause the pump to keep water, until the precaution against freezing again becomes necessary on the approach of winter. If the upper box should work rather tight, the clapper of that may be perforated also.

Street pumps, however exposed, may also be made equally useful, without housing in, or stuffing around with straw, (which is more frequently inefficient than otherwise) by adopting the plan of having the nozzle or exit spout to consist of a stop-cock; and to have a stuffing box or air-tight valve fitted on the pump rod, above the stop-cock, which being put in motion to exhaust the air, will cause the water to rise up into the vacuum, and become subservient to the water boxes. The lower, and if necessary the upper box clappers, to be perforated as in the common out house or yard pump, as before recommended.

If you think these hints worth your notice, please insert them in the Mechanic's Magazine, and you may perhaps hear again from

W. REYNOLDS.

St. John's, New-Brunswick, Dec 14, 1835.

\* Or as much as may be necessary to cover the spear box.

For the New-York Farmer.

ON THE TEAZLE PLANT.

By W. P.

I observe, Sir, in your last number, it is said, "A farmer in Williamsburgh, Massachusetts, sold his crop of teasles for one thousand dollars." The writer of the article goes on to say, "the farm is an ordinary one; but this is a very extraordinary case. It may be done in a century. One swallow does not make a summer. The demand is very limited, and they had become scarce. A few acres of ground would, under good cultivation, produce enough for all the manufactories in the country; and the market would soon be glutted."

The whole of this article is evidently the product of a person who knows nothing of the subject on which he has treated. It is an extraordinary portion of human imbecility, that man should be more confident in giving his opinion on subjects with which he is totally unacquainted, than on those he thoroughly understands.

The carduus fullonius, or teazle plant, is an important bur to the woollen manufacturer, nor is it an article of small consumption, to be raised on a few acres well cultivated. The crop of last year was about forty-two millions, thirty in the States east of New-York, and twelve in the middle and western States; and the land under cultivation for this plant exceeded one thousand acres. The price this year is by no means extraordinary, for it has been as high four cropping seasons out of twelve. Once during that time, they have been three times as high, and last spring they sold at more than double the price of the late crop. The crop was short this year, but the market has been fully supplied by importation. Twenty-two millions have been imported this year, and eight more are expected. The importations are principally from France and England, and the demand for this country has advanced the price in both those markets.

I will quote a few facts to prove that the teazle crop is not so very uncertain with regard to a remunerating price, as represented by your correspondent.

A farmer at Rahway, New-Jersey, has sold his crop in New-York for many years. He plants less than two acres of ground. The last crop he sold for four hundred and six dollars; and, I believe, has never more than once obtained a less sum for the crop of a season than three hundred dollars.

A farmer in Dutchess county, off little more than five acres, sold his last crop for one thousand dollars; and being contracted for before any advance took place, he only obtained the average price.

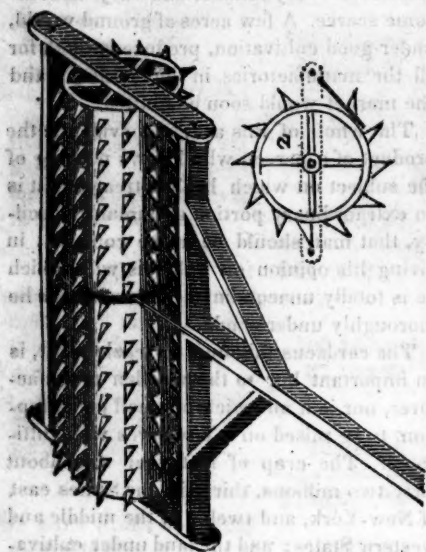
Another farmer, in Orange county, sold his crop this year for rising three thousand dollars, product of thirteen acres.

The teazle is a very uncertain crop, subject to be injured by spring frosts and thaws. The average crops do not probably exceed



forty thousand, and a full crop will reach to one hundred and twenty thousand. If it requires seventeen hundred acres of land to raise a supply for consumption by average crops, it will be easy to account for the great depression resulting from two or three successive years of full crops. W. P.

[We are obliged to W. P. for the above communication, and will thank him to furnish us with an account of the mode of cultivation.]



**REVOLVING PRESS HARROW.**—We have had an opportunity to examine the model of a new agricultural implement, invented by Mr. John C. Concklin, of Peekskill, Westchester county, which he calls the "Revolving Press Harrow." One great object of this implement appears to be to prepare for planting, or other cultivation, by loosening the soil of green sward recently turned over, without the liability of disarranging the turf, and of exposing the grass again to view, which attends the common harrow or drag. Its operation is, first, to press more closely the furrow or sod, by acting as a roller, while the teeth, in leaving the earth, act as levers, lightening up the soil behind the roller without disturbing the sod—thus leaving the surface, and to some depth, light and ready for the seed.

Another important use to which the inventor considers it applicable, is, to scarify and lighten up meadow, or grass land, which has become sward-bound, where it is desirable to continue to use the scythe instead of the plough.

It may also be used as, and answer every purpose of, a roller alone, by first removing the teeth, which may be readily done.

From the explanations of Mr. Concklin, and the appearance of the model, we are inclined to think very favorably of the implement, and would therefore call the attention of our readers to the following drawing and description of it.

Mr. Concklin was the patentee of a beautiful portable forge for silversmiths, and oth-

er purposes, which we saw at the shop of a friend last summer, and to which we alluded in the August number of the *Mechanics' Magazine*, p. 57, but of which we then knew not the inventor. We considered that a useful invention, and it has, as we are informed, proved so,—and the one now under consideration will, we trust, prove equally so, both to the public and the inventor.

**JOHN C. CONCKLIN'S PATENT REVOLVING PRESS HARROW, FOR IMPROVING SWARD AND ARABLE LAND.**—Fig. 2 represents the end of one of the cylinders, showing in particular the manner in which the teeth, which are attached to the frame behind, operates in cleaning the teeth of the rollers.

This machine consists of two cylinders, each 20 inches in diameter and 3 feet long, formed of cast-iron staves, which are bolted to end pieces or heads, in the centre of which are boxes similar to those of a cart wheel, and revolves on an axle in the same manner. The two cylinders are placed on one axle, which is made of wood, in a straight line, the two inner ends coming nearly in contact with each other. A wooden frame is then made, which encircles the whole, and is framed to the axle at each end. To the centre of the frame in front the tongue is placed, and made sufficiently strong by means of braces.

In the surface of the cylinders a sufficient number of holes are made, which receive the teeth made of wrought or cast-iron, of any convenient length or size, so that by the revolving of the cylinders or rollers upon sward or other land, it will become sufficiently scarified or loosened to answer the required purpose. The teeth are fastened into the cylinders by means of keys or nuts upon the inside, and may be removed by taking off one or more of the staves, when a roller only is wanting.

On the under side of the frame that passes directly behind the cylinders or rollers, teeth are also placed, extending downwards, with the points coming nearly in contact with the cylinders, and passing between the rows of teeth thereon, by means of which all turf, stones, or other substance, which might have a tendency to clog them, are removed.

This harrow is constructed like the cast-iron roller, except that it has teeth, and the cylinder is in two parts, which enables it to turn on its centre.

**IMPORTANT TO FARMERS.**—Just published, by Willard, Gray & Co., Boston, a work, entitled *CHEMISTRY APPLIED TO THE ARTS*. By John Anthony Chaptal, Count of Chanteloup, Peer of France, Member of the Institute, &c. First American edition, translated from the second French edition.

To every person who is, or ever intends to be, an agriculturist, we would not only recommend, but earnestly entreat, to purchase a copy of the above work. If he has

but one acre of ground, and is unable to purchase but one book on any earthly subject, we would advise him to let this be the one, as he will find it of more value than any other, or even than all others put together. It has been remarked by a writer on chemistry, and we believe by the author of the above book, 'The chemist has the same advantage over the man who is ignorant of that science, as the man who can see has over a blind man. The blind man may walk with a degree of safety in a beaten and familiar track, and even with a handsomer gate than the man who can see. But if he gets ever so little out of that track, or meets with any new interruption in it, he stumbles over every thing in his way, without knowing how he got out of the track, or how to get in again, or how to remove the obstacle; while the man who can see, is equally safe in a new path, as in an old one.'

As we remarked above, if a man has but one acre of land, and can obtain one dollar and fifty cents to purchase one of those books, and can read and understand it, it will enable him to double the product of that acre.

To those who are opposed to book farming, and who boast that they know how to plant and hoe their corn without consulting a book, we would only remark, that facts are stubborn things; and there is not a man of that description, who cannot, if he searches, find a man whose acre of corn, perhaps with the same as his labor of planting and hoeing, yields twice as many bushels as his; and seeing this, if he is capable of reflection, he will discover that success in agriculture does not depend altogether on skill in planting, hoeing, or sowing, but even in a much greater degree upon the knowledge and practice of fertilizing his ground. He will consider that if he planted an acre of barren sand, and his neighbor planted an adjoining acre of a deep rich soil, his neighbor would receive an ample crop, while he would lose his labor. If he reflects a little farther on the subject, he will find out, that by proper management, his acre of sand may be brought to any degree of fertility, and that his neighbor's rich acre may, by a contrary course, be reduced to barrenness. If he is at a loss to know how this change is to be effected, let him purchase Chaptal's *Agricultural Chemistry*, and it will unfold the whole mystery in plain and easy language, which if he can read it, he cannot fail to understand. S. B.

The new steamboat *Almendares*, at Newport, of 380 tons, and 156 feet long, is a first rate vessel, and will start for Cuba in a few days. She is to ply between Havana and Matanzas.—[Gazette.]

The Spanish ship *Veloz*, formerly a steamboat between Havana and Matanzas, Capt. De Soto, is ready for sea at Newport. De Soto was one of the convicted pirates, but pardoned by the President.—[Gazette.]